Mort, Paul R.

State support for
public schools

STATE SUPPORT FOR PUBLIC SCHOOLS

MORT

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EDITED BY
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EDITED BY

GEORGE D. STRAYER AND N. L. ENGELHARDT

TEACHERS COLLEGE, COLUMBIA UNIVERSITY

SCHOOL ADMINISTRATION SERIES

STATE SUPPORT FOR PUBLIC SCHOOLS

BY

PAUL R. MORT

ASSISTANT PROFESSOR OF EDUCATION
TEACHERS COLLEGE

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EDITORS' INTRODUCTION

This volume is the first in a series of contributions in the field of educational administration to be issued by the Bureau of Publications of Teachers College. Numbered among the alumni of this institution are a great many men and women who are conducting researches of very great importance, not only to the school systems over which they preside, but also to their colleagues of the profession. Some of these studies have been begun during student days and have been extended and developed in the light of experience in the field. The editors have undertaken this series for the purpose of offering a medium of publication for these professional studies.

In offering the study by Professor Paul R. Mort on *State Support for Public Schools* as the first volume in this series the editors believe that they are demonstrating both the worth and the necessity for such a series as is being planned. Professor Mort's researches have been used as the basis for modifying the plan of state support in the most populous state in the Union. His analysis of the measurement of educational need and his proposals with respect to legislation are just as sound for California as they are for New York. The publication of this volume will make his findings available for state and city superintendents of schools and for students of education who are interested in state legislation in this field.

It is proposed to present in this series from time to time the results of researches which have been found effective in modifying the practice of school administration in each of its larger aspects. There are already in contemplation contributions dealing with more adequate school buildings and equipment, better methods of business administration, the improvement of practice in the field of the classification and progress of children in the schools, in the organization of local school systems, in educa-

tional finance, in records and reports, in personnel management, and the like. In each case the criterion which the editors will seek to hold will be a contribution based upon scientific inquiry, the results of which have proved valid in practice.

GEORGE D. STRAYER
N. L. ENGELHARDT

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AUTHOR'S INTRODUCTION

THIS monograph attempts to summarize the techniques developed in recent studies in the field of state aid to public schools, in such a manner that they may more readily be of service in the movement to improve state aid systems. In Part I an attempt is made to present in an uninvolved manner the general structure upon which a proper system of state aid to public schools should be built. This, it is hoped, will prove of value to educational and lay leaders who must judge of the adequacy of state aid systems existing or proposed. It should make it possible for them to get a grasp of the problem apart from its statistical aspects. Techniques of applying the principles involved, some of which involve rather elaborate statistical methods, are reserved for Part II. The materials presented in Part II are related directly to various phases of Part I but are not necessary to a grasp of the problem. They are necessary only for those upon whom falls the task of actually constructing a satisfactory system of state aid. For the most part, the procedures presented have been developed in the last three years. Some of them have not heretofore been available. Many of them owe their inception to the simplification of the problem arising from the analysis by the Educational Finance Inquiry of the principle of equalization of educational opportunity in relation to other controlling factors in state aid.

The Educational Finance Inquiry demonstrated that whereas equalization of educational opportunity requires wealthy districts to help carry the burdens of the poorer districts, the effect of payment for effort is the reverse of this. The result of the emphasis of reward for effort in a state aid system is therefore to destroy, in some degree, the effect of provisions for equalizing educational opportunity.

The conclusion follows that these two purposes that have controlled attempts to build state aid systems since the work of Cub-

berley two decades ago, are found to be incompatible. We are therefore faced with the necessity of choosing one or the other. The decision is not a difficult one. It is the choice between meeting the demands of a principle that cannot be met without state aid—the equalization of educational opportunity—and the use of one of many methods for meeting another principle. The other principle, as stated by Cubberley, is, "that a state should not occupy merely a negative position but should become an active agent for the improvement of educational conditions throughout the state." We may accept this principle and act in accordance with it without the necessity of accepting the statement which, in Chapter I of Cubberley's *School Funds and Their Apportionment,* follows the above statement: "To do this the state should distribute whatever aid it has, be the amount large or small, in such a manner as to encourage extra efforts on the part of the local community and to place a premium on the efforts which communities make to help themselves." We should say now that the state may do the above if it can do so without conflicting with the carrying out of the principle of equalization of educational opportunity. We must point now to new ways to "encourage extra efforts on the part of localities to make the state an active agent for the improvement of educational conditions throughout the state." This is not a discouraging task for a modern educational leadership that can well afford to abjure the swivel-chair leadership involved in 'payment for effort' and assume in its place the dynamic style of Horace Mann.

It would seem, therefore, that in the future development of state aid systems 'payment for effort' would be either entirely eliminated or reduced to a minimum where the good arising from it outweighs the harm. This monograph, accordingly, deals largely with the interpretation of the demands of equalization of educational opportunity. The first five chapters treat of this. Chapter VI takes up other plans of state aid. It points out methods of encouraging effort that might be used in place of payment for effort, and it sets up a plan for measuring the degree of inequality introduced by any proposal for paying for effort.

The techniques developed are illustrated throughout by applications to New York State data, taken from an investigation of educational need in New York State by the writer, and from a study made by the writer, with the cooperation and advice of Professors G. D. Strayer, J. R. McGaughy, and R. M. Haig, for the Joint Committee on Taxation and Retrenchment of the Legislature of the State of New York. Reference is made also to two other recent studies in state aid, *State Responsibility for the Support of Education in Georgia,* by Dr. G. G. Singleton, and *Equalization of the Financial Burden of Education Among Counties in North Carolina,* by Dr. F. W. Morrison. The legislative application of many of the principles involved is shown by frequent reference to the plan now in use in Maryland and the recently passed equalization law of New York State.

In Chapter XVII a summary of shortcomings in the system of techniques is given. If the deficiencies have been properly appraised, a state aid system developed along the lines specified in this monograph should require but minor adjustments to meet changing conditions and the demands of future research.

PART I

THE NATURE OF A SATISFACTORY SYSTEM OF STATE SUPPORT FOR PUBLIC SCHOOLS

CHAPTER I

THE EQUALIZATION OF EDUCATIONAL OPPORTUNITY

In the minds of most people there is no clear-cut division between state and local responsibility for education. The states played an important rôle in the development of education, and it seems to be generally accepted that the state as a governmental unit has a definite responsibility for seeing that some minimum of educational opportunity is offered to all children. There appears to be general agreement, also, that the discrepancy should not be too great between the opportunity offered the children least favored by environment and that offered the average child. People do not commonly demand that all children shall have the same or an equivalent educational opportunity.

Theoretically, at least, a given minimum offering could be obtained by the method followed in Massachusetts Colony. Laws passed in this colony in 1642 and 1647 specified a minimum program for all communities to follow. Such procedure, however, conflicts with the principle of equality of taxation. It has come to be recognized that, since it is the state's interest that demands the minimum offering, it is the state's duty so to provide that the burden of supplying the minimum is equalized according to its best lights in equalizing the burden of taxation. This matter of equalizing burden was of little importance as long as the burden upon localities for providing what was considered an acceptable minimum was not excessive, but this stage in our development did not last long. Education soon expanded to the point where the state could no longer raise the minimum requirements to an acceptable level because of the burden on poor communities. Yet no adequate solution was applied. The result today is that, in most states, the actual minimum educational offering barely emerges from the ground, whereas that offered by the most able

communities towers among the clouds and even the state average is a solid structure, pointed to with worthy admiration. Yet there were efforts leading toward the proper solution more than a half century ago. Massachusetts, where the trails leading to so many educational beginnings eventually end, passed legislation denying state aid to the wealthier districts as early as 1874. This was followed slowly by similar steps for special aid for the poorer communities in other states, so that two decades ago steps had been taken by New Hampshire, Vermont, Connecticut, North Carolina, Indiana, New Jersey, and New York. Cubberley, in his monumental study, *School Funds and Their Apportionment,*[1] finding this condition, emphasized its importance but laid down no definite plan for future development. Several states followed the inadequate examples of the pioneers, among them Colorado in 1913, and Michigan and Minnesota in 1921. Some of the pioneers made worthwhile improvements over their first attempts, notably Indiana in 1922, New Hampshire in 1921, and North Carolina in 1919 and 1923. But nothing approaching an adequate analysis of the problem emerged prior to the analyses made by Updegraff,[2] particularly in the New York situation in 1922, and the plan developed by the Maryland State Department of Education,[3] enacted into law in 1922. Updegraff's analysis of the problem of equalizing burden, although faulty in certain fundamentals, went a long way in the right direction. The final plan which he submitted for New York State is handicapped, however, by the attempt to reward effort also. The Maryland plan is faulty in similar respects. The Educational Finance Inquiry in 1923 pointed out the inconsistency in the two purposes of state aid, 'payment for effort' and 'equalization of educational opportunity.' This resulted in the simplification discussed in the Introduction and made two other important contributions to this problem. It

[1] Cubberley, E. P. *School Funds and Their Apportionment,* Chap. XIII. Bureau of Publications, Teachers College, Columbia University, 1905.

[2] Updegraff, Harlan. "Financial Support." *Rural School Survey of New York State.* Wm. F. Fell Co., Ithaca, N. Y., 1922.

[3] Maryland State Department of Education. *Tentative State Program for Public Elementary and High Schools.* April, 1921.

gave a more adequate analysis of the division of state and local support than had been given by Updegraff and set up a clear definition of the principle of equalization of educational opportunity.

The Educational Finance Inquiry interpretation of the principle of equalization of educational opportunity that has proved invaluable in the further interpretation of this problem is as follows:

> To carry into effect the principle of "equalization of educational opportunity" and "equalization of school support" as commonly understood, it would be necessary (1) to establish schools or make other arrangements sufficient to furnish the children in every locality within the state with equal educational opportunities up to some prescribed minimum; (2) to raise the funds necessary for this purpose by local or state taxation adjusted in such manner as to bear upon the people in all localities at the same rate in relation to their tax-paying ability; and (3) to provide adequately either for the supervision and control of all the schools, or for their direct administration, by a state department of education.[4]

This monograph takes up the analysis at this point. In the next four chapters, it deals with the problems involved in the practical application of the above interpretation. This problem is attacked in the three steps indicated in the definition: (1) determining the content and cost of the minimum program; (2) setting up a method of equalizing the burden; and (3) providing for proper administration. Chapters II and III carry out this first step, Chapter IV the second step, and Chapter V the third step.

[4] Strayer, G. D. and Haig, R. M. *The Financing of Education in the State of New York*, p. 174. Educational Finance Inquiry, Vol. I. Macmillan Co., 1923.

CHAPTER II

EDUCATIONAL UNDERTAKINGS INCLUDED IN THE MINIMUM PROGRAM

FOUR CRITERIA

The definition of equalization of educational opportunity may be interpreted to indicate that the responsibility the state has for education is in no way different from that of the local community. A step toward equalization of burden is simply a step toward providing support for an activity that in both control and support has heretofore been delegated largely to the local community. The criteria that are set up for choosing those undertakings that should be included in the minimum program do not, therefore, attempt to divide the good that the state, as such, receives from the good that the community, as such, receives. They are set up rather for choosing (1) those educational undertakings that, through the experience of the localities in the state or in other states, or through adequate experimentation and research, represent the position of the people of the state as to what is good for all educationally; and (2) any additional undertakings or offerings that experience or research indicate to be necessary to supplement the above undertakings in certain communities, so that the minimum educational program will give reasonably equivalent educational results.

This viewpoint dictates three criteria for choosing the content of the minimum program. The first of these is universality. The fact that an educational undertaking has been adopted by every community in the state is a sufficient reason for its inclusion in the minimum program. If such undertaking ceases to be desirable, it can be prohibited or otherwise made to lose its universal hold. On the other hand, an undertaking that at any time becomes so well proved that it can be adopted as a state-wide under-

taking should, upon its universal adoption, whether by mandatory or permissive legislation, become a part of the minimum program.

When all universal undertakings have been adopted and the degree to which each should be carried out has been determined, it may be impossible for some communities to comply with the minimum without embarking upon supplementary undertakings, such as transporting pupils. This provides a second criterion. Such undertakings as are necessary in order that the universal undertakings may be carried out to the expected degree should be considered in equalizing the burden of such communities.

Even with the above provisions, it may prove that in some communities, because of peculiar local conditions, the educational results of the program set up by the first criterion and made possible throughout the state by the second may be less than is expected from such a program. This demands the third criterion. In case the peculiar conditions can be overcome by supplementary educational offerings, such as better trained teachers or smaller classes, for instance, such supplementary offerings should be considered in equalizing the burden of these communities.

To these three criteria, common sense dictates the addition of a fourth. Any educational undertaking should not be included in the minimum program if there is adequate reason to believe that the general educational result will be bad. Neither here nor at any other point in the development of a state aid system may we lose sight of ultimate educational results. If better ultimate results can be obtained by throwing the entire support upon the locality, then that should be the procedure. The writer does not believe that this criterion will ever justifiably cause the exclusion of any undertaking from an equalization program. However, it is the ultimate educational results in which we are primarily interested, and an honest consideration of this criterion can not but give perspective to the development of any equalization program.

The need for consideration of this criterion may be emphasized by a quotation from Swift [1] on an allied subject.

[1] Swift, F. H. *A Biennial Survey of Public School Finance in the United States 1920-21,* p. 19. U. S. Bureau of Education, Bulletin, 1923, No. 47.

The results of the Connecticut policy [referring here to the establishment of a permanent common school fund in 1795] by which the responsibility of supporting schools was removed almost entirely from the local communities and thrown back upon the state could not have been foreseen by those who inaugurated this policy. Nevertheless, the evils soon showed themselves, and the school fund of Connecticut became notorious as an example of a magnificent endowment creating educational disaster. Of all the ills that followed the establishment of the Connecticut school fund, the most disastrous was its effect upon local taxation.

Our four criteria for choosing the elements of a minimum program may be restated as follows:

1. An educational undertaking found in all communities in the state when the equalization program takes effect should be included in the minimum program.

2. When, because of conditions over which the local community has little or no control, supplementary undertakings are necessary in order to make it possible to carry on any activity chosen under the first principle above, these undertakings should be included in the minimum program.

3. When additional offerings are required in order to supply educational returns commonly expected from the minimum program but which, because of conditions over which the local community has little or no control, may not be expected to materialize, these additional undertakings should be included in the minimum program.

4. If there is reason to believe that the inclusion of any element in a minimum program will have any other than a salutary effect upon the educational offering in any community or will bring about harm that is out of all proportion to the good involved in including it in the burden to be equalized, it should be omitted from the minimum program.

DIVISION OF RESPONSIBILITY BASED UPON OTHER CRITERIA

The point of view dictating the first three of the above criteria is not necessarily indicated in the definition of equalization of educational opportunity that is being used as a basis for this discus-

sion. It is reached rather after a consideration of other possible interpretations of the elements of which a minimum program should consist. Upon examination of various attempts to make a division of these elements upon other bases, no adequate reason for expecting a successful attempt to divide responsibility could be found. The division would certainly not be in terms of local and state functions, for those functions that the state has wished to withdraw from the locality have been taken over by the state in both control and support. Instances of this are teacher training and teacher certification. Likewise, no successful attempt has been made to divide functions and undertakings according to whether the state as a whole expects returns or whether the returns go only to the localities.

An analysis of some of the proposed plans of dividing state and local responsibility, with the purpose of discovering the principles involved, will demonstrate the bases for the above conclusions. Some of these proposals stop short of these criteria, while others include undertakings that these criteria exclude. There are those that take the position that the state should accept responsibility—at least to the point of equalization of the burden of the minimum program—for instructional costs, whereas the locality should carry the entire responsibility for other expenditures. Still others propose that the state should assume the responsibility for equalizing the current costs of the minimum program but should leave capital outlays to the localities. A third position is that all undertakings that are mandatory should be included in the minimum program.

Those who advocate the plan of state assumption of instructional costs do so with the belief that this will sufficiently relieve the poorer communities rather than with the idea that the other expenses are fundamentally a local responsibility. Whatever other reasons are advocated for state assumption and control of instruction need not concern us here, since no principle is involved that would preclude the adoption of a similar program for other costs.

The position taken by those who would leave capital outlay to

the local community may be justified on the ground of expediency and perhaps to some degree on the basis of our fourth criterion. A close approximation to equalization can be obtained even if it is ignored; and ignoring it makes it possible to sidestep a new, and what has been considered a complicated, problem in administration. Considering educational results, if anything is to be left entirely to the local community, probably buildings will suffer less than anything else, for it is generally agreed that it is easier to get a community enthusiastic over expenditures for buildings than for other expenditures, such as teachers' salaries, for instance.

But we are interested now in discovering whether fundamentally there should be such a division—whether there is any basic principle involved. Those who take the position that capital outlay should be left to the locality hold that there is a principle involved. They point out that buildings are particularly a part of the community's capital—inseparable from the community. They cannot be moved from place to place as the results of the educational processes are moved. This argument is good in so far as that part of the cost of a building which is not required for the administration of the minimum program is concerned, but it would not seem to be adequate when applied to the necessary minimum. Up to some point, the building is a necessary part of the equipment required to carry on the educational process, the result of which will be felt throughout the state and in different communities just as the results of the very acts of the teachers are felt.

Although the equalization of burden has for one of its outstanding purposes the eventual improvement of educational offering, the element of justice to the locality is involved. Because of this element, one may easily fall into the error of taking the position that the burden of all undertakings required by the state should be equalized. It is true that it is not necessarily the fault of the community if the state requires it to undertake activities that are not required of all of the state. But the redress for this situation is not in state aid. If state aid were the way out, it would be to the advantage of any community, whether rich or

poor, to have all of its legislation performed by the state legislature. From the standpoint of the state as a whole, it is difficult to see why the state should set standards for teacher training—standards for educational offerings of all types—higher for the large city than for the small city or rural districts.[2] If it does do so, it is certainly not for the purpose of equalizing educational opportunity. It may be the expression of the will of some group that cannot get expression through the local government, or it may be an indication that, for the time being, a local government failing to function, the state recalls the legislative powers it has vested in the local government. It is not the mandatory nature of the minimum program that carries with it the duty to equalize burden, but rather the state responsibility for the educational program presented by the uniform minimum program to be equalized.

APPLICATION OF THE CRITERIA

The application of these criteria to the educational program of the state of New York will serve to illustrate their use. In the state of New York, the first eight grades and the high school grades are made available throughout the state. Elementary and high school education would then be acceptable under the first criterion, and the cost of offering some minimum opportunity in these grades should be equalized. Since the state requires the provision of a more expensive type of instruction (small classes) for retarded children throughout the state, this can be taken into consideration under the first criterion.

The second criterion would demand a consideration of transportation costs in rural communities. It would demand consideration of differences in costs in fuel and in building construction if these were not so small as to be negligible. This criterion would likewise demand a consideration of greater costs in instruction if it could be established that it really costs more to obtain the minimum type of teacher for the city or for the rural school.

[2] There are those who would seek to explain this by means of our third criterion.

This particular problem has not been definitely settled. The necessary adjustment, if any, would certainly be smaller than it at first would appear to be, since there are elements that tend to offset the difference in cost of living. The attractiveness of the work to teachers, the appeal of working under the better leadership the city provides, tend to offset it to some degree. One of the elements that makes the problem a difficult one is the fact that the cities do not employ the minimum type of teacher. This makes a judgment of what the city would be required to pay on the open market for the minimum type of teacher still more complicated.[3]

A clear case under the third criterion would be kindergarten or pre-first grade work in a school for children that do not talk English. If the common type of kindergarten were to be recognized as a part of the minimum program, however, it would have to be upon the definite proof that the cities and villages need this organization to obtain results equivalent to those obtained by country schools without it—unless, of course, some arrangement were made that would make the kindergarten universal. The same statement would serve for costs of junior high schools or vocational classes over and above the costs of the more traditional type of organization. So long as the 8–4 plan is not supplanted throughout the state by the junior-senior high school organization, the seventh and eighth grades should be counted as elementary and the ninth grade as high school. Similarly, vocational and continuation classes should be counted on the grade level of the work they supplant.

If it were possible to demonstrate that the equalization of capital outlay would result in neglect of buildings on the part of the locality, this would be an application of the fourth criterion that might well demand a whole or partial omission of capital outlay from the minimum program.

[3] The cost of the minimum teacher on the open market may not be the proper basis for attacking this problem. The method used in Prussia in determining the salaries of teachers may be the better basis. This bases the teacher's salary on equivalent standards of living and equivalent saving margin. Alexander, T. *The Prussian Elementary School,* p. 200 (Macmillan, 1919).

CHAPTER III

THE COST OF THE MINIMUM PROGRAM

The experience of the localities provides the criterion upon which the cost of the minimum program must be based, just as it provides the only useful basis in the treatment given in Chapter II. Determining the cost of the minimum program is not a problem of arriving at the cost of some part of the educational offering in which the state is primarily interested, for no distinction was found between the interests of the state and those of the locality. It is simply the problem of determining the cost of the offering provided by those communities in the state which are neither especially favored by wealth nor unusually lacking in that respect. The poor communities are eliminated because such communities have been handicapped by the local system of support. They have not had as much money available for education as they would have had if the state as a whole had been the taxing unit. The communities of average wealth, however, have not been affected by the fact that schools have been supported on a local basis rather than on a statewide basis. They have been faced with the situation that, so far as supporting the minimum program is concerned, will confront all communities in the state when the burden of the support of the minimum program is equalized. Their experience is the best index of what the experience of the entire state would have been had it not been for the great variations among communities in economic ability.

The actual determination of what the expenditure in the communities of average wealth may be demands some preliminary definitions. The cost of the minimum program must be expressed as a unit which can be applied to all communities. This demands some yardstick for measuring the relative cost of the undertakings discussed in Chapter II, when once the communities of average wealth have been located. Such a measure has been

defined as a unit of educational need. In isolating the communities of average wealth this same measure is needed to determine the relative cost of education in all communities. In this connection a further measure is needed—a measure of tax-paying ability. Both of these measures—unit of educational need and unit of tax-paying ability—are needed not only in this chapter but in other connections. One determines the cost to a community of the minimum program. Both are needed to determine the state aid for a community under any equalization plan.

THE MEASUREMENT OF EDUCATIONAL NEED

A satisfactory index of educational need must provide a measure of the relative cost of offering the minimum program in all communities of the state, regardless of the richness or meagerness of the program to be finally adopted. Such a measure is needed in determining the richness of the minimum program to be recommended, and it makes possible the setting up of the various phases of the scheme for equalizing educational opportunity, independent of any actual cost figure.

The actual expenditure of communities for education, the number of pupils, or the number of teachers would be rough measures of educational need. So long as states were attempting to distribute aid according to both need and effort, such indices as the number of teachers were considered good. They were roughly proportional to the cost, and they also served to reward those communities that were progressive enough to have an unusually large number of teachers and to penalize those communities that were sparing in this respect. Since no one made an adequate analysis of the relationship of these two purposes, most people were satisfied to obtain a measure like this that appeared to do the double duty. The number of pupils in attendance was also considered a fairly good measure, for it both measured, in a way, the educational job to be performed and rewarded those communities that kept children in school. Those who wished to put a little more reward into this measure used the aggregate days of attendance, a measure that rewarded those communities that offered longer school terms.

Three states made steps to take some of the reward for effort out of the teacher measure. They introduced a definite ratio of teachers to pupils above which teachers would not be counted. In the Maryland plan this is 1 to 40. In the California law it is 1 to 30. In the North Carolina law it varies with the size of the school.

The procedure proposed for obtaining an index of educational need is similar to that followed by these three states. It accepts the teacher or pupil measures, eliminates the elements of payment for effort, and introduces corrections to make them more accurately proportional to the cost of any minimum program. The corrected measure may be expressed in two forms, the weighted pupil and the typical teacher. One of these is a multiple of the other, but each form permits a unique treatment in legislation.

The weighted pupil is based upon the fact that the educational task faced by a community is roughly proportional to the number of pupils to be dealt with. The proportion is not exact because secondary education costs more than elementary education, and because in sparsely settled areas classes are necessarily smaller and therefore more costly than in villages and cities. To make adjustments for these higher per pupil costs the weighted pupil technique has been devised. This technique gives extra weight to the actual number of pupils in those situations where the true per pupil cost of a given educational offering is high. In elementary schools so large that an increase in size does not decrease per pupil cost, the actual number of pupils is taken as the weighted pupil measure of educational need. In all other types of educational organizations and in all smaller elementary schools, the number of pupils is transmuted into a number that indicates the proportional per pupil cost in that organization. In this transmutation the per pupil cost for an equivalent offering in the large elementary schools is used as a base.

Weighted pupil standards must be developed for each state using them. The basis for the standards for most of the educational costs is the relationship between the number of teachers employed in communities of a given size and the average daily

attendance. These relationships are derived separately for each type of school organization and then combined where desirable into a single measure. At one stage of the development of the weighted pupil units, the standards may be thought of as teacher cost unit standards, or 'typical teacher' standards.

The theory for the techniques for developing weighted pupil and typical teacher standards is developed in an earlier monograph by the present writer.[1] These techniques, together with an illustrated application to New York State data and the use of resulting standards in New York State equalization legislation, are given in Chapter VIII.

THE MEASUREMENT OF ABILITY TO SUPPORT EDUCATION

In order that the burden of supporting the minimum program may be made to fall upon the people in all communities according to their ability to pay taxes, it is necessary to have a measure by which the relative ability of communities to support education may be determined. Just as the measure of educational need is required in order to determine the cost of a minimum program in a community, the measure of ability to pay taxes is required in determining the share of that cost which should be borne by the community through state and local taxes.

Happily, the problem may be made a simple one. It may be simplified first by eliminating theoretical ability to pay from consideration. We need only determine ability to pay under the tax system actually to be used. Since we must deal with communities which have no power over their tax systems except through state action, we cannot consider their ability as it would be under an ideal tax system. To build our system of state aid on such a foundation would throw excessive burdens upon the actual taxpayers in some communities, simply because there happened to be wealth in those communities that was not taxable under the existing system of taxation.[2]

[1] Mort, Paul R. *The Measurement of Educational Need.* Bureau of Publications, Teachers College, Columbia University, 1924.

[2] The theoretical ability to pay taxes is of course useful in improving tax systems and the above statement should not be taken as an attack upon its

Another step in simplification is introduced by the necessity of considering the ability to pay local taxes apart from the ability to pay state taxes. We are interested first in the ability of each community to support its educational program through local taxes.[3] For this purpose, we need a measure of the sources which the tax system permits the localities to tap.

If it were necessary to obtain a single measure of ability to pay taxes, state, local, and federal, we should be faced with the difficult task of weighting the tax sources according to the fair rates of returns. We should have to meet a similar situation in weighting different sources for local revenues if it were not for the fact that local school revenues are derived almost entirely from property taxes.[4] As a matter of fact, we need only to obtain the value of taxable property to have a measure of the relative ability of a locality to pay local taxes for supporting schools. This cannot be done except where assessment of property values is made by a centralized system of assessment under state control, or where an adequate state agency is established for determining the rates at which local officers assess property. In the former case, the assessed value of property is the measure of ability to pay local taxes for school purposes. In the latter, either the equalized or the full value obtained by applying the rates of assessment to assessed values is the desired measure.

Table 1 illustrates the use of the full or actual value as a measure of ability to pay taxes. In actual practice where, as in the state of New York, the locality uses its own assessed valuation as a basis for local taxes, the state aid law must require

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use for such purposes. But the burden of an educational program cannot be equalized throughout a state by improving the tax system. Whatever is done, the equalization of educational opportunity will demand the further adjustment of burden through the use of state subventions for education. This is clearly demonstrated in the work of the Educational Finance Inquiry, Strayer, G. D. and Haig, R. M. *The Financing of Education in the State of New York*, Vol. I, in the chapter on "State Aid" (Chap. XII, p. 171).

[3] The equalization of state taxes is discussed in Chap. XVI.

[4] Newcomer, Mabel. *Financial Statistics of Public Education in the United States, 1910-1920.* Appendix, Tables VI and VII. Educational Finance Inquiry, Vol. VI. Macmillan Company, 1924.

TABLE 1

DATA BEARING ON THE FISCAL SUPPORT OF PUBLIC EDUCATION IN THE SUPERVISORY DISTRICTS, CITIES AND VILLAGES OF NEW YORK STATE, ARRANGED ACCORDING TO VALUATION PER WEIGHTED PUPIL, 1922–1923

Supervisory District, City or Village *	County	Number of Weighted Pupils	Full Valuation of Real Estate per Weighted Pupil	Current Expense per Weighted Pupil	State Aid per Weighted Pupil	Local Current Expense per Weighted Pupil	Computed Local Tax Rate	Local Tax Rate Equivalent of State Aid	Additional Local Tax Rate to Raise $40	Local Tax Rate to Raise $80—Without State Aid
Long Beach	Nassau	392	$71,159	$ 85.33	$11.80	$ 73.53	10.3	1.7	4.0	11
Bronxville	Westchester	573	32,447	145.18	22.47	122.71	37.8	6.9	5.4	25
Scarsdale	Westchester	881	32,120	199.92	30.33	169.59	52.8	9.4	3.0	25
Kenmore	Erie	1,125	26,667	73.49	15.37	58.12	21.8	5.8	9.2	30
District No. 1	Westchester	3,402	21,140	167.53	18.59	148.94	70.5	8.8	10.1	38
District No. 3	Saratoga	2,275	20,669	48.57	16.43	32.15	15.6	7.9	11.4	39
Harrison	Westchester	1,001	19,455	76.00	17.72	58.28	30.0	9.1	11.5	41
District No. 3	Westchester	2,581	17,852	90.03	20.10	69.93	39.2	11.3	11.1	45
District No. 2	Westchester	4,699	17,324	105.24	20.41	84.83	49.0	11.8	11.3	46
District No. 1	Erie	3,109	16,521	62.37	17.49	43.88	26.6	10.6	13.6	48
District No. 4	Westchester	2,307	15,608	74.83	15.42	59.41	38.1	9.9	15.7	51
Tarrytown	Westchester	986	14,836	110.90	22.58	88.32	59.5	15.2	11.7	54
District No. 1	Monroe	3,210	14,492	66.64	17.10	49.54	43.2	11.8	15.8	55
New Rochelle	Westchester	7,789	13,903	109.66	23.42	86.24	62.0	16.8	11.9	57
District No. 2	Nassau	5,790	13,824	92.45	17.99	74.46	53.9	13.0	15.9	58
Niagara Falls	Niagara	9,571	13,531	90.75	21.12	69.63	51.5	15.6	14.0	59
New York City	New York	935,398	13,461	98.08	20.74	77.34	57.5	15.4	14.3	59
District No. 3	Monroe	2,217	13,274	56.44	15.37	41.07	30.7	11.5	18.4	60
Albany	Albany	12,784	13,286	96.26	23.43	72.83	54.8	17.6	12.5	60
District No. 3	Suffolk	4,977	13,219	72.72	16.97	55.75	42.2	12.8	17.4	60
District No. 1	Nassau	8,700	12,829	88.46	17.97	70.49	54.9	14.0	17.2	62
Bay Shore	Suffolk	1,119	12,684	79.13	17.43	61.70	48.6	13.7	17.8	63
Buffalo	Erie	68,626	12,543	113.64	26.82	86.82	69.2	21.4	10.5	64
Pelham Manor	Westchester	1,347	12,486	129.11	18.48	110.63	88.6	14.8	17.2	64
Rockville Center	Nassau	1,471	12,446	89.28	17.71	71.57	57.5	14.2	17.9	64
White Plains	Westchester	4,792	11,840	123.52	28.50	95.02	80.5	24.1	9.7	68
Lackawanna	Erie	2,488	11,594	84.03	22.45	61.58	53.1	19.4	15.1	69
District No. 2	Niagara	2,010	11,438	56.10	13.89	42.21	36.9	12.1	22.8	70
Yonkers	Westchester	20,080	11,250	107.10	23.24	83.86	74.5	20.7	14.9	71
Lynbrook	Nassau	1,526	11,069	67.30	16.84	50.46	45.6	15.2	20.9	72

Hastings-on-Hudson	Westchester	1,133	10,988	76.63	15.65	60.98	55.5	14.2	22.2	72
District No. 2	Suffolk	4,757	10,937	79.66	19.68	59.98	54.8	18.0	18.6	73
Port Washington	Nassau	1,559	10,890	108.32	16.95	91.37	83.9	15.6	21.2	74
Rochester	Monroe	44,507	10,605	109.46	28.12	81.34	76.7	26.5	11.2	75
District No. 1	Suffolk	8,433	10,556	69.97	17.98	50.99	48.3	17.0	20.9	76
Green Island	Albany	471	10,503	64.08	16.40	47.68	45.4	15.6	22.5	76
Syracuse	Onondaga	26,718	10,485	70.63	20.64	49.99	47.7	19.7	18.5	76
Glen Cove	Nassau	1,655	10,311	71.61	15.83	55.78	54.1	15.4	23.4	78
District No. 2	Erie	5,415	10,154	61.46	17.67	43.79	43.1	17.4	22.0	79
District No. 3	Ontario	1,388	10,089	51.26	12.96	38.30	38.0	12.8	26.8	79
District No. 4	Monroe	2,411	9,689	54.92	17.52	37.40	38.6	18.1	23.2	83
Mamaroneck	Westchester	1,957	9,628	91.30	17.65	73.65	76.5	18.3	23.2	83
Putnam	Putnam	2,820	9,568	61.10	18.07	43.03	45.0	18.9	22.9	84
District No. 3	Niagara	2,818	9,173	50.50	15.95	34.55	37.7	17.4	26.2	87
Mount Vernon	Westchester	9,659	9,133	102.88	21.97	80.91	88.6	24.1	19.7	88
Utica	Oneida	14,735	9,075	81.51	20.73	60.78	67.0	22.8	21.2	88
District No. 3	Albany	2,358	8,958	56.53	15.13	41.40	46.2	16.9	27.8	89
Geneva	Ontario	2,308	8,868	69.34	20.21	49.13	55.4	22.8	22.3	90
District No. 1	Dutchess	2,213	8,778	49.57	15.93	33.64	38.3	18.1	27.4	91
Glens Falls	Warren	2,280	8,677	73.30	15.75	57.55	66.3	18.2	27.9	92
District No. 3	Dutchess	1,525	8,643	53.63	18.14	35.49	41.1	21.0	25.3	93
Troy	Rensselaer	2,063	8,570	87.48	22.54	64.96	75.8	26.3	20.4	93
Poughkeepsie	Dutchess	6,058	8,544	58.84	17.13	41.71	48.8	20.0	26.8	94
Huntington	Suffolk	1,928	8,540	71.09	16.99	54.10	63.3	19.9	26.9	94
Middletown	Orange	2,946	8,503	65.03	15.30	49.73	58.5	18.0	29.0	94
District No. 2	Dutchess	2,722	8,476	58.66	17.60	41.50	49.0	20.2	26.9	94
District No. 3	Orange	1,949	8,327	48.70	15.86	32.84	39.4	19.0	29.0	96
Rockland	Rockland	6,963	8,323	70.02	16.62	53.40	64.2	20.0	28.1	96
Hamilton	Hamilton	1,444	8,312	69.36	23.12	46.24	55.6	27.8	20.3	96
North Tonawanda	Niagara	2,471	8,172	82.79	17.44	65.35	80.0	21.3	27.6	98
District No. 3	Steuben	1,991	2,365	41.85	21.82	20.03	84.7	92.3	76.9	338
District No. 4	Steuben	1,651	2,261	34.13	20.21	13.92	61.6	89.4	87.5	354
District No. 1	Chenango	1,710	2,178	39.34	21.68	17.66	81.1	99.5	84.1	367
District No. 2	Albany	1,523	2,124	37.93	22.54	15.39	72.5	106.1	82.2	377
District No. 1	Schoharie	1,373	2,114	38.53	24.90	13.63	64.5	117.8	71.4	378
Waterford	Saratoga	898	1,889	63.94	19.31	44.63	236.3	102.2	109.5	423
Ballston Spa	Saratoga	884	1,694	66.01	20.67	45.34	267.7	122.0	114.1	472
District No. 6	Oneida	2,013	1,377	40.57	21.74	18.83	136.7	157.9	132.6	581

* This table omits the 267 cities, villages, and supervisory districts with full valuation of real estate per weighted pupil less than $8,172 and greater than $2,365.

the community to raise an amount equivalent to the yield of a fixed rate on the full or equalized value of its property. That is, the state determines the amount of state aid to which the community is entitled, by using the true value of property in the community. It then requires the locality to raise whatever tax is necessary to provide the other needed funds. The statement covering this in the New York equalization law is as follows:

> There shall be deducted . . . an amount equivalent to a dollar and fifty cents on each one thousand dollars of actual valuation of taxable property within such city or district. . . . The actual valuation of taxable property shall be ascertained by taking the assessed valuation of such property as it appears upon the last assessment roll of the town or city in which such property is located, after revision as provided by law, and by applying thereto the ratio, as determined by the state tax commission, which such assessed valuation bears to the actual valuation of such property.[5]

In the case of Maryland, where the local rates of assessment were considered sufficiently uniform, the local contribution required in the equalization law is based upon the assessed valuation of property. The provision in the Maryland law reads as follows:

> . . . provided, that the board of county commissioners of each of the several counties sharing in the Equalization Fund shall levy and collect an annual tax for the schools of not less than sixty-seven (67) cents on each one hundred dollars ($100) of assessable property, exclusive of the amount levied for debt service and capital outlay for the schools; . . .

DETERMINING THE COST OF A SATISFACTORY MINIMUM EDUCATIONAL PROGRAM

With measures at hand by which the load to be carried in any type of community may be measured, all of the communities with average wealth per unit of educational need may be readily selected. The central tendency of the unit expenditure in such communities is the proposed unit cost of the minimum program.

Table 1 illustrates the nature of the necessary data. From the data given in this table it is possible to select the communities

[5] The Education Law of the State of New York, 1925, Sec. 491b.

TABLE 2

CURRENT EXPENSE PER WEIGHTED PUPIL IN CITIES, VILLAGES, AND SUPERVISORY DISTRICTS THAT HAVE APPROXIMATELY THE SAME FULL VALUATION BACK OF EACH WEIGHTED PUPIL AS THE AVERAGE FOR THE STATE AS A WHOLE, 1922–1923

Supervisory District, City or Village	County	Number of Weighted Pupils	Full Valuation per Weighted Pupil	Current Expense per Weighted Pupil		
				Raised Locally	State Aid	Total
White Plains	Westchester	4,792	$11,804	$95.02	$28.50	$123.52
Lackawanna	Erie	2,488	11,594	61.58	22.45	84.03
District No. 2	Niagara	2,010	11,438	42.21	13.89	56.10
Yonkers	Westchester	20,080	11,250	83.86	23.24	107.10
Lynbrook	Nassau	1,526	11,069	50.46	16.84	67.30
Hastings-on-Hudson	Westchester	1,133	10,988	60.98	15.65	76.63
District No. 2	Suffolk	4,757	10,937	59.98	19.68	79.66
Port Washington	Nassau	1,559	10,890	91.37	16.95	108.32
Rochester	Monroe	44,507	10,605	81.34	28.12	109.46
District No. 1	Suffolk	8,433	10,556	50.99	17.98	69.97
Green Island	Albany	471	10,503	47.68	16.40	64.08
Syracuse	Onondaga	26,718	10,485	49.99	20.64	70.63
STATE OF NEW YORK	.....	.....	10,419	.....	.....	.....
Glen Cove	Nassau	1,655	10,311	55.78	15.83	71.61
District No. 2	Erie	5,415	10,154	43.79	17.67	61.46
District No. 3	Ontario	1,388	10,089	38.30	12.96	51.26
District No. 4	Monroe	2,411	9,689	37.40	17.52	54.92
Mamaroneck	Westchester	1,957	9,628	73.65	17.65	91.30
Putnam	Putnam	2,820	9,568	43.03	18.07	61.10
District No. 3	Niagara	2,818	9,173	34.55	15.95	50.50
Mount Vernon	Westchester	9,659	9,133	80.91	21.97	102.88
Utica	Oneida	14,735	9,075	60.78	20.73	81.51
District No. 3	Albany	2,358	8,958	41.40	15.13	56.53
Geneva	Ontario	2,308	8,868	49.13	20.21	69.34

of average ability. Table 2 gives such communities. It gives the cities, villages, and supervisory districts in New York State which have approximately the same full valuation of real estate per weighted pupil as has the state as a whole. All communities having not more than 15 per cent greater or less valuation per

weighted pupil than the state as a whole are given. The actual current expenditure [6] per weighted pupil, the local current expenditure, and the amount coming from the state in the year 1922-1923 are given in this table.

An analysis of these figures leads to the conclusion that $70 per weighted pupil is a program acceptable to the people of New York State.

Other methods have been proposed for arriving at the cost of a satisfactory minimum program. The Educational Finance Inquiry, in its study of state aid in New York State, used the statewide expenditure per unit of educational need.[7] Updegraff proposed this measure as the best measure of those which he considered in developing a state aid plan for New York State.[8] Singleton proposed this measure, checked by use of the median and average unit expenditures in counties, as a satisfactory figure for Georgia.[9]

Inasmuch as the central tendency of expenditure in the state as a whole may be expected to approximate the expenditure in communities of average wealth, such measures should be reasonably acceptable. The use of the average expenditure in New York State, however, gives a figure almost 20 per cent higher than that obtained from the more refined procedure.

STEPS TOWARD THE REALIZATION OF A SATISFACTORY MINIMUM PROGRAM

In practically every state, the type of educational offering provided by the communities of average wealth is too far in advance of the present minimum in the state to serve as any more than

[6] Capital outlay, if it is to be considered, is dealt with as described in Chap. XIV.

[7] Strayer, G. D. and Haig, R. M. *Financing Education in the State of New York,* p. 12. Educational Finance Inquiry, Vol. I. Macmillan Company, 1923.

[8] Updegraff, Harlan. *Financial Support,* p. 140. Rural School Survey of New York State, Vol. V. Wm. F. Fell Co., Ithaca, 1922.

[9] Singleton, G. G. *State Responsibility for the Support of Education in Georgia,* p. 20. Bureau of Publications, Teachers College, Columbia University, 1925.

a more or less remote objective in the state. To adopt such an educational offering as the minimum would require in the state of New York, for instance, the doubling of the expenditure for education in 10 per cent of the rural communities and 50 per cent or more increase in 80 per cent of them. Meager as the offering in the community of average wealth may appear to the communities near the top of the educational ladder, an educational program that requires doubling the expenditure is beyond the imagination of the people in the districts that are on the lower rounds. Although the increased expenditure may come from the state and the net result may be an actual decrease in burden, state and local, on these communities, it is difficult to lead them to see that such procedure is not sheer waste of money. These communities, by and large, lack the leadership that can help them bridge the gap between higher teachers' salaries now and better teachers in a few years. The gap is all the more difficult for the people in rural communities to bridge because they tend to think in terms of the individual teachers who would be benefited by the increases in salary that would, in most cases, accompany marked increases in expenditure.

Whatever may be the extent of the satisfactory minimum program, it is obvious that the beginning must be made with a minimum to which people will subscribe as reasonable. In most cases, it would seem probable that this would be somewhere near the present minimum. With the burden of the feasible program equalized, and the heavy burdens thus lifted from the poorer communities, proper encouragement and leadership should result in a more or less voluntary expansion of the program in these communities, so that a program for raising the minimum from time to time will not meet with serious opposition.

In the case of New York State, the proposal of $70 per weighted pupil, or, since approximately 27 weighted pupil units are equivalent to one typical teacher unit, practically $1,900 per typical teacher, was judged by both professional workers and laymen to be unreasonably high. Twelve hundred dollars per typical teacher was considered a proper initial level. This is somewhat in advance of the present actual minimum found in the state.

The equalization law accordingly provides for the equalization of the burden of a program to cost in the neighborhood of 60 per cent of the cost of a satisfactory minimum. For the poorer communities, this provides for either a great decrease in tax burden, or a considerable increase in their educational programs beyond the equalized minimum. These communities will have funds available to support the minimum program without exhausting their tax-paying powers. As a matter of fact, if they tax themselves as heavily as the progressive communities of the state that are not handicapped by lack of wealth, they will be able to provide educational programs considerably beyond the minimum required.[10]

The good that may come from equalizing even the minimum now in existence in a state should not be minimized. What it means to the community that has been handicapped by lack of funds may be illustrated by the case of a certain New York State village with a population of 5,000. This village has been spending approximately $1,200 per typical teacher, which is the minimum to be equalized according to the equalization law. Although this village has been receiving approximately 30 per cent of this amount from the state, it has been required to carry a burden, state and local, three times as great as the burden it will be required to carry under the equalization plan. If this community has the zeal for education that will lead it to continue its high rate of taxation, it will be able to provide a program as good as the state average.

[10] The local contribution to the minimum required in order that the burden may be equalized requires a local tax rate considerably lower than that found in most communities of greater than average wealth. To keep communities that may not have the leadership to hold up their local support of education to a point reasonably within the range of their possibilities, the New York equalization law requires all communities receiving money from the equalization fund to tax themselves for school purposes at a rate comparable to that in the wealthier communities. Less than one third of this is taken to support the minimum program. The greater part of it is available for expansion of the local program beyond the equalized minimum.

CHAPTER IV

DIVISION OF SUPPORT BETWEEN STATE AND LOCALITY

THE burden of an educational program may be equalized by either of two methods of distributing state aid. These two methods are referred to in this chapter as the 'large fund method' and the 'small fund method.' The term, large fund method, may be applied to a system of distributing state aid that awards aid in proportion to the educational need, without regard to the ability of the locality to pay. To bring about complete equalization of a minimum program by this method requires complete state support. This method of distributing state aid is therefore not effective unless there is a large fund. At present, most states distribute state aid by the large fund method in spite of the fact that their funds for this purpose are so small as to equalize effectively the burden of only the most meager minimum program.

The term, small fund method, is applied to a system of distributing state aid which awards poorer communities more than wealthy communities. When state funds are not adequate for the complete support of a satisfactory minimum program, the small fund method of distributing them should be used.

This chapter deals with the problems involved in setting up the small fund method as a method either of distributing all state aid or of supplementing funds already distributed by the large fund method.

THE LOCAL RATE OF CONTRIBUTION

WHEN the small fund method of distribution is used to equalize burden, each community makes contributions to the minimum program in two ways. It makes its contributions to the state fund through the state taxes and its local contribution through

local taxes. If the result is to be an equalized burden, the contribution in both cases must be in the same relation to its ability to pay as the similar contributions of all other communities. The tax system by which the state aid fund is alimented must treat all communities justly, and the amount of money necessary to supplement the state aid to the point where it will support the minimum program should require the same tax burden in all communities. The manner of obtaining proportionate contributions to the state fund is discussed in Chapter XV. The manner of measuring ability to pay in localities has been discussed in Chapter III. There remains only the matter of determining the rate of contribution to be made by localities in proportion to their tax-paying ability, in such a way that all communities will be required to contribute at the same rate.

The maximum local rate of contribution is the rate necessary in the richest district to supplement the state aid to the point where sufficient funds will be available to support the minimum program. When the small fund method is to be used for distributing all state aid, the maximum rate of contribution in the localities is the rate necessary to support the minimum program in the richest district. A higher rate results in the transfer to poorer communities of burden that should be borne by wealthy communities. The wealthier districts are not required to put forth so much effort to support the minimum program as is required of the poorer districts. A local rate lower than that required in the wealthiest district may be required, however. It offers no opportunities for any district to avoid paying its just share toward the support of the minimum program.

The final decision in any case rests partly upon another consideration. Obviously, the greater the local contribution, the less the amount of state aid needed to supplement it in order to support a given program, or the more adequate the program that can be equalized with a given state fund.

This consideration opposes the other. The desire for a better educational program dictates a high local contribution, while the demand for the equalization of burden sets a definite limit beyond which the rate cannot be raised. Where the local districts

are smaller than counties, the richest district in most states would require such a low rate of contribution to support the minimum that the small fund method would require almost as great a state fund as the large fund method. In New York State, for instance, it was found that to use the richest city, village, or supervisory district to determine the local contribution would result in a rate so low that only 15 per cent of the total burden would be carried locally. It was discovered, however, that the use of the richest county unit, in place of the richest taxing district, made it possible to raise 77.4 per cent locally and yet to increase the burden of the poorer communities only one-half of 1 per cent.

The conclusion that is suggested by this experience is that, where the local units are small, the wealthiest county or the wealthiest large city district may be taken as the *key district,* in lieu of the wealthiest district, without introducing significant inequality. But this should not be accepted without comparing the advantages to be obtained with the disadvantages. Both may be readily determined by methods which are discussed in detail in Chapter IX.

THE OPTIMUM COMBINATION OF LARGE AND SMALL FUND METHODS WHEN OLD GRANTS ARE CONTINUED

THE above discussion presents the criteria for determining the local rate of contribution whether the plan to be followed be purely the small fund plan or a combination of a small fund plan with a previously instituted large fund plan that has been inadequate to equalize a satisfactory program. The combination of the two will doubtless be resorted to in bringing about progress in many states. Although the state has a right to do away with an old plan of state aid, it is questionable whether a plan that proposes to discontinue payments to the wealthier communities will often meet with much favor. In both the Maryland and New York situations, it was found desirable to superimpose the small fund plan upon the old large fund scheme.

In supplementing a large fund plan by means of a small fund

TABLE 3

DISTRIBUTION OF CITIES, VILLAGES, AND SUPERVISORY DISTRICTS ACCORDING TO TOTAL STATE AID PER WEIGHTED PUPIL RECEIVED ON BASIS OF YEAR 1922–23

Total State Aid per Weighted Pupil	Number of Cities, Villages, and Supervisory Districts	Total Number of Weighted Pupils in These Communities
$11.50	1	5,007
12.00	1	392
12.50	1	903
13.00	--	-----
13.50	1	1,388
14.00	1	2,010
14.50	5	13,619
15.00	8	19,430
15.50	17	38,426
16.00	15	35,677
16.50	14	38,563
17.00	30	80,382
17.50	32	76,524
18.00	26	75,633
18.50	18	39,979
19.00	30	70,460
19.50	23	53,415
20.00	19	33,899
20.50	21	1,016,478
21.00	11	28,648
21.50	12	37,724
22.00	16	36,215
22.50	8	13,100
23.00	7	31,660
23.50	5	35,563
24.00	3	4,045
24.50	2	2,575
25.00	1	2,353
25.50	--	-----
26.00	1	68,626
26.50	--	-----
27.00	--	-----
27.50	--	-----
28.00	1	44,507
28.50	2	5,588
29.00	--	-----
29.50	--	-----
30.00	--	-----
30.50	1	881
31.00	--	-----

plan, there is a certain optimum combination of the two that should be worked out. The large fund plan, if it is based on an inadequate measure of educational need (and all such plans in present use are so based), can be considered as equalizing an educational offering equivalent to the amount per unit of educational need granted to the community which is least favored by that plan. In the case of New York State, this was found to be $11.50 (Table 3) per weighted pupil, although if the fund distributed had been distributed according to a true measure of educational need, there would have been $20 per weighted pupil available. To supplement this by the small fund method up to $70 per weighted pupil would require that $58.50 per weighted pupil be financed by local and state support on the small fund method.

But the large fund aid can be used to better advantage than this. A provision that will raise the minimum received under the large fund method would make it possible to reduce the part of the program to be financed by the small fund method. Up to a certain point, the amount necessary to raise the minimum under the old grants will be smaller than the amount of state aid required to equalize the same amount on the small fund basis. Another point that must be considered is the optimum use of the old state aid toward the support of the minimum program. In the illustration given in the preceding paragraph, $11.50 of the $70 per weighted pupil was to be equalized by the large fund method. The remaining $58.50 was to be equalized by the small fund method. The complete analysis given in Chapter X leads to an increase of the $11.50 to $21, and a corresponding decrease of the $58.50 to $49. The maximum local rate of contribution resulting is $3.64 for each thousand dollars full valuation of property.

The above division point between the large and small fund method is simply a step in the development of the local uniform contribution. It need not appear at all in the law. The law needs simply to provide for subtracting from the educational need of the community, measured in terms of the cost of the minimum program, the following items.

a. All state aid which is being received at present.
b. The amount that the local rate of contribution would yield on the wealth of the district.

The result is the additional state aid required.

Let us take an example of a community now receiving $12 per weighted pupil, in which the local contribution would be $20. If the minimum program called for $45 per weighted pupil, the amount of additional state aid per weighted pupil would be $45 less $12 less $20, or $13. We should know from our analysis that $9 of this is the amount necessary to supplement present aid to $21, and that the other $4 is the state's contribution to the part of the program dealt with on the small fund basis.

Chart 1 shows graphically the division of support provided in the above illustration. The cities, villages, and supervisory districts of New York State are arranged according to the wealth per weighted pupil, the wealthiest district being at the top. The entire length of each bar is taken as $70, the unit cost of the satisfactory minimum program. The left section of each bar represents the yield per weighted pupil of a local tax of $3.64, levied on the full value of real estate. The right section represents the state aid per weighted pupil that is granted under the old system of state aid. The middle section represents the necessary additional state aid that would be required to equalize the burden. Except in a few instances, each bar represents several communities. The vertical height of the bar is in proportion to the number of weighted pupils. For instance, since New York City has nearly half of the educational need of the entire state, the bar representing New York City is almost as high as all others combined. As the height of the bar represents the number of weighted pupils, so the width of any section of it represents local support, equalization aid, or state aid under the old system, per weighted pupil. The area of the left section of each bar represents the total local contribution; the area of the middle section represents the amount received for equalization purposes; and that of the right section represents the amount received from the old system of state aid. The whole chart may be thought of as a single bar graph. The area at the left represents the part of

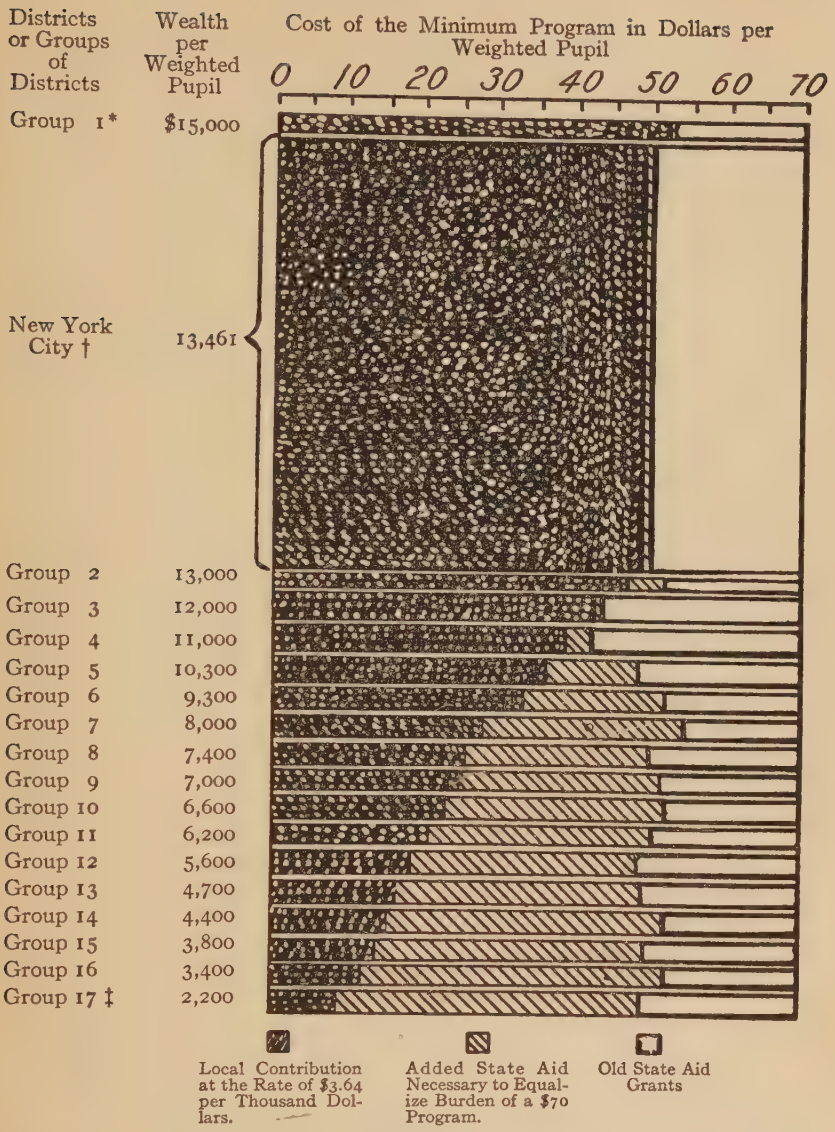

Districts or Groups of Districts
Wealth per Weighted Pupil
Cost of the Minimum Program in Dollars per Weighted Pupil
0 10 20 30 40 50 60 70
Group 1* $15,000
New York City † 13,461
Group 2 13,000
Group 3 12,000
Group 4 11,000
Group 5 10,300
Group 6 9,300
Group 7 8,000
Group 8 7,400
Group 9 7,000
Group 10 6,600
Group 11 6,200
Group 12 5,600
Group 13 4,700
Group 14 4,400
Group 15 3,800
Group 16 3,400
Group 17 ‡ 2,200
Local Contribution at the Rate of $3.64 per Thousand Dollars.
Added State Aid Necessary to Equalize Burden of a $70 Program.
Old State Aid Grants

CHART 1

DIVISION OF SUPPORT BETWEEN STATE AND LOCALITIES AS PROVIDED BY THAT METHOD OF EQUALIZING A $70 MINIMUM PROGRAM IN NEW YORK STATE WHICH USES OLD GRANTS TO BEST ADVANTAGE

* This is an average of the wealthiest districts. The wealthiest district has $70,000 per weighted pupil.

† The height of the bar is proportional to the number of weighted pupils in the district or group of districts represented.

‡ This is an average of the poorest districts. The poorest district has $1,400 per weighted pupil.

the total cost of a $70 program that is provided locally. The area at the right represents the contribution of the old system of state aid to the support of the minimum program. The area in the middle represents the additional state aid necessary to equalize the burden.

The above illustrates the division of responsibility between state and locality for the $70 educational level used in the illustration of the development of the best use of present state funds.

Chart 2 illustrates the division of state and local responsibility that results from the New York Equalization Law. Communities are arranged according to wealth from top to bottom, as in Chart 1. The total width of each bar represents $43 per weighted pupil. The vertical height represents the number of weighted pupils. The section of each bar farthest to the left represents the local contribution at the rate of $1.50 on each thousand dollars full value of property. The second section represents the state aid for equalizing burden. The third section represents the state aid provided by the new law, for the distribution of which the old large fund method is to be used. It is simply the amount added to the old teachers' quotas. The fourth section represents the state aid received under the old system.

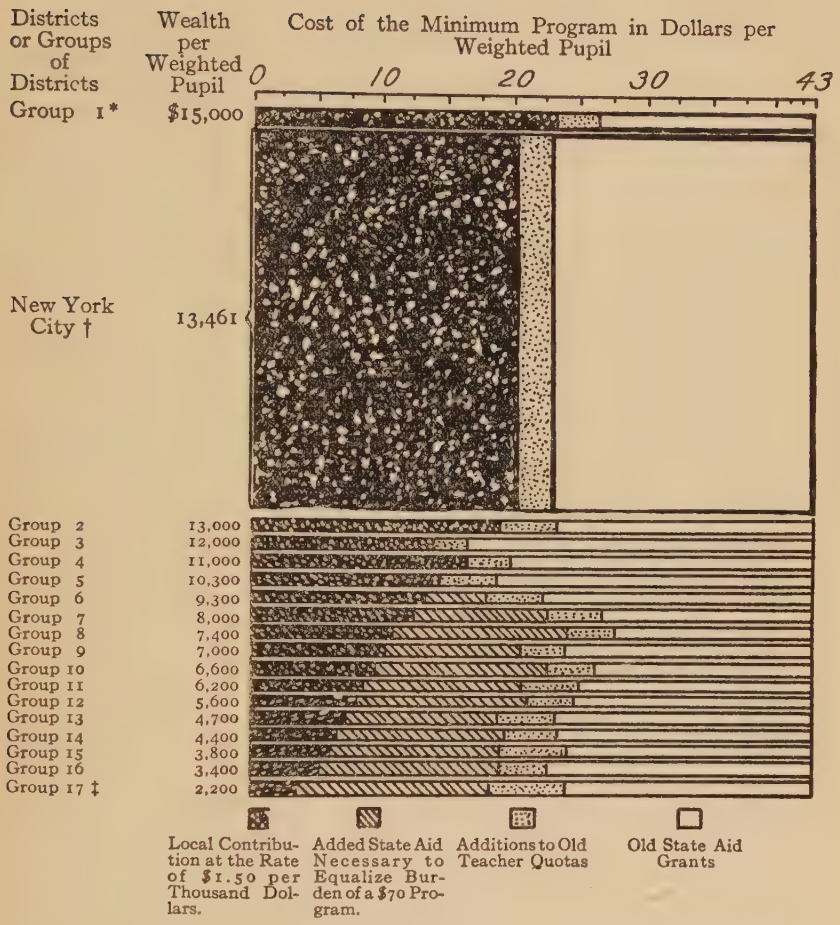


CHART 2

DIVISION OF SUPPORT BETWEEN STATE AND LOCALITIES AS PROVIDED BY THE NEW YORK EQUALIZATION LAW

* This is an average of the wealthiest districts. The wealthiest district has $70,000 per weighted pupil.

† The height of the bar is proportional to the number of weighted pupils in the district or group of districts represented.

‡ This is an average of the poorest districts. The poorest district has $1,400 per weighted pupil.

CHAPTER V

CONDITIONS FOR PARTICIPATING IN THE EQUALIZATION PROGRAM

In dealing with the minimum program in Chapters II and III it was assumed to be possible to describe the minimum program in terms of specific conditions that all districts may be required to meet. Theoretically, this position is sound enough, but practically it may, under certain circumstances, be impossible or even undesirable for a state to set up certain fundamental requirements. If the first step is that of equalizing a minimum but little beyond the present actual minimum offering in the state, such conditions as training of teachers and the like may be sufficiently covered by requirements already existing or so nearly so that the state may without difficulty raise them the amount considered desirable. But if, as one of the conditions, a satisfactory local unit of administration is required—an issue that would of course arise only in those states which, like New York State, do not have a satisfactory local unit—the difficulty of establishing a whole new order of local school government is immediately met. This question is bound to arise in a state that has unsatisfactory local units. One of the big weapons that have been used against the inadequate local systems is the cost of offering a really adequate education. To equalize the burden of offering a substantially more adequate education is to take from the forces making for better local organization one of their most effective tools.

The situation must be faced then by either setting up adequate local units of organization or by denying participation in the equalization fund to districts not properly organized. The latter is really one method of doing the former. Undoubtedly, the most satisfactory system by which to reorganize the local districts

would be to appoint a district commission, as proposed by the Rural School Survey of New York State, and accept its recommendations. The next best step would be to set up some political unit already established, such as the county, township, or combination of townships. If neither of these methods is feasible, the only alternative is to offer equalization to properly organized districts only and to set up all possible facilities in the way of permissive legislation to encourage, under guidance of the state department, the organization of satisfactory local units. This, coupled with the proper type of educational campaign on the part of the state department of education, should give results.

In setting up an equalization program in Maryland, the local unit did not cause trouble, because the state is organized locally on a county unit basis. In the state of New York there was the antiquated district system to be dealt with. There was, indeed, some local leadership—the district superintendents who deal with fifty to one hundred teachers and in some cases with almost as many school boards. The reorganization of local districts was not feasible. The township law that substituted townships for districts as the local units had stayed on the statute books for but one year. The recommendations of the Rural School Survey to reorganize through the use of a state commission had not been accepted by the legislature. The only feasible plan was to limit the equalization fund available to schools that were satisfactorily organized. The New York equalization law accordingly provides as follows:

Additional apportionments for certain districts. In addition to all other quotas and apportionments of public school money provided for in this chapter, there shall be apportioned and paid to each city and union free school district or other district organized and established as provided by law, in each of which districts there shall be maintained a high school or academic department approved by the state education department, the sums to be determined by the commissioner of education as hereinafter provided. Such additional quotas and apportionments shall also be apportioned and paid to districts not maintaining an academic department or high school which employ five or more elementary teachers and provide adequately, with the approval of the commissioner of education, for the academic instruction of pupils who have completed the work of the

elementary grades. Such additional quotas shall be known as equalization quotas.[1]

The New York law elsewhere makes provisions for relieving the smaller districts from impossible local burdens (15 to 20 mills on assessed valuation) so that any district may have available the minimum amount per teacher without making local effort out of all proportion to reason. Yet the differential between the burden required in such districts and that which they would be required to carry if they were properly organized locally is such as to promise to be a real incentive toward voluntary local reorganization. Attention is called to the phrase in the above quotation from the New York law: "or other district organized and established as provided by law." This is to cover the new types of local organization made permissible from time to time, the purpose of which is to guide the localities into the formation of desirable local units.

The resulting differential in local contribution between satisfactory and unsatisfactory district organizations makes it possible for village districts, while actually increasing their educational offerings, to reduce their local tax rates. In many cases, the result will be a tax rate less than that which surrounding small districts are paying for a less adequate educational offering. Since, by the plan of equalization, the village cannot lose by annexing such units, and since the smaller districts gain in tax rate, this should result in the increase in the size of districts in many parts of the state and the concurrent elimination of many small districts. There is no reason why the development might not take the form, in some instances, of annexing to village or city districts that can provide adequate supervision, one-teacher schools that should be continued as one-teacher schools. This would require that such schools, approved by the state department, be counted in the same way that the New York law provides for the consideration of classes for retarded or crippled children. They should be counted as demanding one teacher unit of cost (one typical teacher, or 27 weighted pupils) regardless of the

[1] Education Law of the State of New York, 1925, Sec. 491b.

number of pupils. The New York law does not make such provision.

No matter how promising or interesting the above procedure may be, it is of course a makeshift required by the fact that it is not feasible at the present to impose adequate local organization from above. It is a method of dealing with a bad situation. No matter how desirable it may be to equalize burden completely, if that equalization results in the further entrenchment of a decadent system of local organization that makes impossible the use of the tools and techniques developed in city school administration, its result is bad, for in the long run it limits educational opportunity for vast masses of the people. The district system was a result of the falling from grace of the descendants of those New England idealists that in the Massachusetts Colony Laws of 1642 and 1647 wrote the conception of equalization of educational opportunity which has become an outstanding ideal and guiding principle of this nation. These descendants, scattered over wider areas, felt less pressure to provide education than had their zealous forbears. This resulted in legislative permission to set up a more localized control. New York State, in an ill-starred moment, accepted this type of organization in 1812. Today, more than a century later, this organization stands in the way of carrying out what laymen and educators alike agree to be the next step in educational progress demanded by the principles of equalization of educational opportunity.

But New York State is not alone in facing this type of problem. Many other states still have the district system. Other states that appear upon paper to have an adequate local organization are so ill organized for educational leadership that they face a similar problem in equalizing educational opportunity. For, after all, it is not the size of the local district that determines whether the local district is able to deal with largely increased funds in such a way as to make legislators feel satisfied in providing them. Where there is adequate professional leadership, the legislator does not worry about waste of money. He asks no question about the adequacy of the city or village board

to spend state money, but the cry that comes is that the country district cannot spend so much money—and the cry comes especially loud from the legislator who represents the country district. The difference is not one of size of district, but of educational leadership. Any state faces a problem similar to that faced by New York State of either excluding certain districts or reorganizing the local district if it does not have both the size of district that makes possible the setting up of adequate local professional leadership and the actual provision of that leadership.

CHAPTER VI

STATE SUPPORT FOR PURPOSES OTHER THAN EQUALIZATION OF EDUCATIONAL OPPORTUNITY

It is the belief of the writer, expressed in the Introduction, that the rewarding of effort as a method of encouraging progress will be less and less used by states. The recognition of the fundamental opposition between this method and the principle of equalization will doubtless bring about the development of other tools for effectively leading communities to exceed the minimum. It might be possible, for instance, to defend a proposal that the state stimulate progress by devoting funds to support educational experiments. It might choose for trial in various communities projects selected primarily with reference to their promise as possible additions to the offering to be made available throughout the state. The dedication of a relatively small sum to such purposes would seem to be far more promising of fruitful results in the direction of educational progress than a blanket offering to assist any community which would pay part of the cost to establish extensions of its educational system which are still in the experimental stage.

In the transition period toward a more satisfactory minimum opportunity, supplemented by less doubtful and perhaps even more effective means for assisting progressive leadership, it is possible, at least, to balance the good to be gained from any proposal against the degree of inequality of burden introduced.

With the total cost of the minimum program determined, it is possible to determine the amount of inequality of burden that will be introduced by granting state aid for purposes other than equalization. There are two conditions to be recognized: (1) the inclusion of the activity in question in the measure of need of communities having it, and thus, in effect, in the equalization

program, and (2) the setting aside of a separate fund to be used independently of the equalization fund.

The first condition exists if a type of education is considered in measuring the need of communities, although the principle of equalization of opportunity does not demand that it be recognized. A clear case would be that of counting the minimum task greater for cities having junior high schools, in order to encourage their establishment. In this case, the per cent of increase in burden may be determined by dividing the total cost of the added type of education (in this case the total excess of cost of junior high schools over traditional education for the same children) by the total cost of the minimum program.

The total added burden will not necessarily represent the increase in state aid but may be the increase in state aid plus the increase in minimum local tax rate throughout the state. That is, the resulting increase in the cost of the minimum program will be met by additional state aid alone or by additional state aid plus an increase in the minimum local tax rate.

When the second condition obtains, that is, when the special activity is aided from a separate fund, the state as a whole is held responsible only for the amount of aid it grants, since the locality presumably raises more than the minimum local rate in order to meet the special conditions set for receiving special aid. The inequality of burden introduced in this case is determined by dividing the amount of state aid set aside for this special purpose by the total cost of the minimum program.

The above analysis indicates that the activities set up in the minimum program should be set up strictly with the idea of obtaining an equal minimum opportunity. Reward for effort, if it is desired, may be obtained with less inequality of burden by creating a separate fund.

CHAPTER VII

SOME STATE SUPPORT PLANS AND THE EQUALIZATION OF EDUCATIONAL OPPORTUNITY

THE NEW YORK EQUALIZATION LAW

The advantages and disadvantages of certain plans have been dwelt upon in those chapters in which they were used to illustrate the applications of the techniques presented. The New York equalization law attempts to use the $44,000,000 state aid fund that is distributed by a combination of large fund methods in such a way that it will contribute to the support of a minimum program of $1,200 for each elementary teacher and $1,600 for each high school teacher. This is 60 per cent of the minimum program that would be recommended as satisfactory according to the techniques presented in this monograph. It provides for supplementing the present $44,000,000 state aid by distributing further funds amounting to approximately $6,000,000 in much the same manner as the old grants, and then provides for making up deficiencies between the local rate of contribution, $1.50 on a thousand dollars actual value of property, and the cost of the minimum program not already covered by state aid. It is estimated that this will require approximately $4,000,000 annually, making a total state aid fund of approximately $54,000,000. The old state aid is used so effectively toward the support of the minimum that only approximately 2 per cent goes to communities to which it would not go if it all went toward the support of the minimum program. This wipes out almost entirely the effect of the old payment for effort provisions. In the measurement of educational need, the standards presented in this monograph for illustrative material were used. The shortcomings in the present law are: (1) the minimum program equalized is not satisfactory except as a first step; (2) only half the cost of transportation is

recognized; and (3) the equalization law does not apply to all of the districts in the state. Districts not having a satisfactory organization are barred from participation. The law provides, however, for the relief of any great inequalities in burden in the barred communities. Provision is made for further development by requiring all communities receiving state aid to offer a program in advance of the equalized program and by admitting districts to participation as soon as they have formed satisfactory local units. Nothing can be said as to the working of this law, for it does not become effective until the school year 1926-27.

THE MARYLAND LAW

THE Maryland law was the first to apply upon any great scale the small fund method of equalizing burden. It provides for supplementing a local tax of $6.70 on each thousand dollars assessable property by any amount necessary in addition to old forms of state aid to support the minimum program. The cost of the minimum program is determined by adding to the salary budget based upon a state salary schedule an amount equivalent to twenty-four seventy-sixths of the total salaries. In determining the state aid, teachers are not counted in excess of one for each forty children in average daily attendance. The result is a minimum program costing approximately half as much per pupil as that proposed by the New York law, with a considerably less degree of equalization of burden and a greater degree of payment for effort. The less degree of equalization of burden arises from the fact that the wealthiest county was not taken as the key community in determining the local rate of contribution. A community of average wealth was chosen. The greater degree of payment for effort arises from the fact that a salary schedule is used rather than a figure representing the typical or average salary required to provide the minimum program.

THE MORRISON PLAN FOR NORTH CAROLINA

THE plan of state aid proposed by Morrison for North Carolina takes advantage of a refined measure of educational need but in-

troduces the same element of payment for effort that is found in the Maryland plan. Morrison chose the salary schedule basis rather than a flat minimum amount because it was his feeling that the degree of payment for effort involved is advisable for North Carolina.[1]

THE SINGLETON PLAN FOR GEORGIA

In the plan proposed by Singleton for Georgia[2] the minimum desirable program is set at $700 per teacher unit, but for the first step the equalization of the burden of a minimum nearer the present minimum—$400 per teacher unit—is proposed. The educational need is measured in terms of average daily attendance for the reason that analysis similar to that proposed in Chapter III, based on total enrollment figures instead of average daily attendance and with high school and elementary figures unseparated, gave no differential between the larger and smaller schools in the ratio of children to teachers. Further analysis, when more detailed statistics become available, will probably show the need for refinement of this measure of educational need.

[1] Morrison, Fred W. *Equalization of the Financial Burden of Education Among Counties in North Carolina.* Bureau of Publications, Teachers College, Columbia University, 1925.

[2] Singleton, Gordon G. *State Responsibility for the Support of Education in Georgia.* Bureau of Publications, Teachers College, Columbia University, 1925.

PART II

TECHNIQUES INVOLVED IN THE DEVELOPMENT OF A SATISFACTORY SYSTEM OF STATE SUPPORT FOR PUBLIC SCHOOLS

CHAPTER VIII

THE MEASUREMENT OF EDUCATIONAL NEED

THE WEIGHTED PUPIL [1]

THE development of the weighted pupil standards for a state does not involve a comparison of actual cost figures except when two types of organization, such as the high school and elementary school, are being compared. In developing the proportions between smaller and larger schools, actual costs would represent different types of offerings since they would necessarily represent different communities.

To find proportionate costs of the same program, all costs are divided into two groups: (1) those proportional to the number of classrooms and (2) all others. The first group includes most of the costs for education; but some of them, such as costs for textbooks and supplies, are more strictly related to the number of pupils; and costs such as transportation, even in a minimum program, cannot be predicted from either the number of pupils or the number of teachers alone. The greater part of the procedure laid down in this chapter has to deal with this first group of costs. In the nine steps for developing the weighted pupil standards, all but the last deal with this first group.

Since this first group of costs is proportional to the number of classrooms, the variation in per pupil costs from community to community for a minimum program is inversely proportional to the size of classes, or directly proportional to the ratio of teachers to size of school. The relative per pupil costs can therefore be obtained for different sizes of high schools or elementary schools

[1] The use of this measure is discussed in Chap. III, pp. 14-16. This is the first of the series of chapters dealing with specific techniques. As is indicated in the introduction, these chapters are technical in nature and it is believed not essential to a grasp of the fundamental issues involved in a state support system.

simply by finding the number of teachers supplied in schools of different sizes. Working under the assumption that the experience of one size of school throughout the state is as valuable as that of any other size of school, the average practice of the state for each size of school can be taken as an acceptable standard for establishing the proportional cost in that size of school.

A technique has been devised that makes it possible to avoid dealing with averages for every size of school. One needs only to obtain the mathematical relationship between size of school and number of teachers in all sizes of schools to be able to compute rapidly the number of teachers that would be provided on the average in any given size of school without reference to a large table of standards. This mathematical relationship between teachers and size of school will not be a simple proportion and not even an equation of the first degree. The line it describes will be a curve. A complicated formula can be avoided, however, by breaking up the distribution into sections such that in each section the relationship will be approximately linear. This substitutes two or more simple straight line formulas for one complicated curvilinear formula.

STEPS FOR DEVELOPING WEIGHTED PUPIL STANDARDS

THE method of deriving these mathematical relationships is given in nine steps. The first seven steps must be repeated for each type of organization included in the minimum program—such as elementary schools and high schools. The eighth step shows how to express units for different organizations in terms of a single unit. The final step shows how to treat costs that are not proportional to the number of classrooms.

1. *Necessary Data.* (1) Pupil figures for each organization to be studied—elementary and high school, at least. Average daily attendance is the best figure available because it can be defined more specifically than enrollment data and consequently practices in figuring it are more uniform. The use of aggregate attendance is not permissible because it introduces the length of term as a disturbing element. The size of the school, regardless of the length of the school year, is what is desired. In a recent

study, because average daily attendance figures were not available, enrollment figures were used. Since the plan was to be administered in terms of average daily attendance, the relationships obtained by using enrollment were corrected by use of the expected relationship between average daily attendance and enrollment.[2] In the case of cities, there is no necessity for obtaining data by individual schools, but in the rural districts each school should be dealt with as a separate unit.[3]

It is not necessary to consider separately an organization such as the high school unless the unit cost is different from other organizations. Even then it is necessary only when the percentage of the total school enrollment found in this organization may be expected to vary in a marked degree in different types of communities. If it were not for the great variation in percentages of high school population enrolled in the high school grades, a single figure based on elementary and high school data would serve our purpose.

(2) Teacher data should be obtained from the same organizations and districts. Special teachers and supervisory officers should be counted as well as classroom teachers.

(3) Figures for one year will suffice. This should be the latest year available. The relationships will not change materially except over a period of years unless there is a sweeping change made as the result of state action.

2. *Table for Dividing Data.* A table similar to Table 4 should be developed. It should include schools so small that there is a definite drop in the ratio of teachers to pupils. From inspection of this table, the point above which the ratio does not decrease should be determined. In Table 4 it appears to be in the neighborhood of 350.

3. *Ratio of Teachers to Pupils in Larger Schools.* The ratio of teachers to size of school most typical for schools above the point of division of Table 4 should be determined.

[2] Singleton, G. D. *State Responsibility for the Support of Education in Georgia.* Bureau of Publications, Teachers College, Columbia University, 1925.

[3] See Table 12, footnote.

In dealing with the data of Table 4, some decision had to be reached as to what to do with the data from the larger cities. Since their number was so small, it was impossible to get a reliable measure for this group of districts. If they were included and weighted with any consideration at all given to size, they would upset the tendency found in the large group of smaller districts. It seemed wiser to establish the standards on the basis of the large group of small districts since from these the effect of size rather than that of the practices in a few places would be the determining factor. The 350 to 1,200 range was therefore chosen. The ratio of teachers to pupils in this range proved to be .0463.

TABLE 4

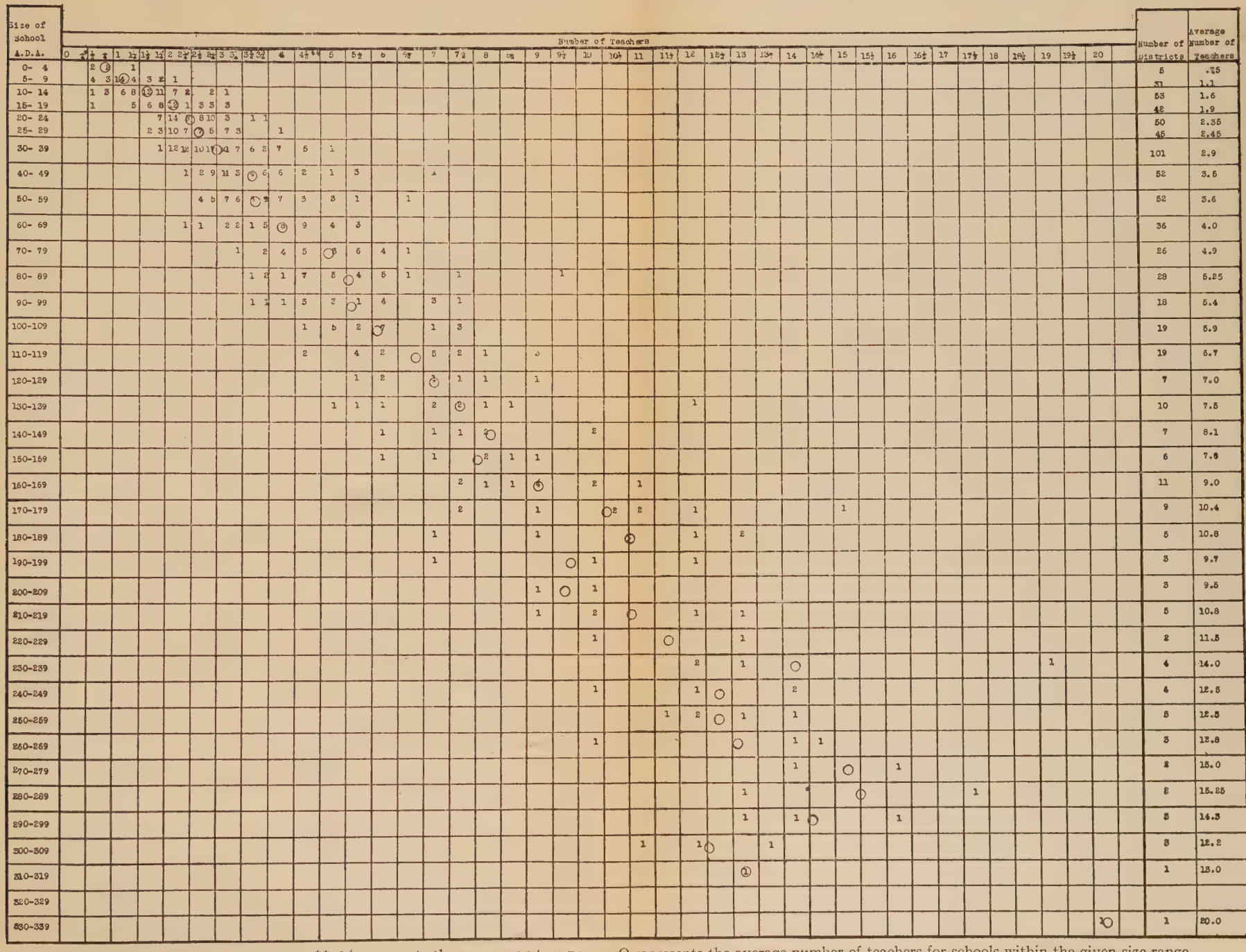
RATIO OF NUMBER OF HIGH SCHOOL TEACHERS TO SIZE OF HIGH SCHOOLS IN SCHOOL DISTRICTS WITH 150 OR MORE PUPILS IN AVERAGE DAILY ATTENDANCE IN HIGH SCHOOLS *

Range of High School Average Daily Attendance Considered	Number of Schools	Ratio of Teachers to Pupils
150– 199	34	.0552
200– 249	18	.0514
250– 299	15	.0491
300– 349	5	.0442
350– 400	6	.0464
350– 500	14	.0476
400– 450	6	.0480
500– 650	6	.0416
350– 650	20	.0458
650– 750	5	.0467
650– 850	8	.0470
650–1200	16	.0456
850–1200	8	.0442
1200–1600	13	.0494
1600–2400	6	.0456
2400–4000	11	.0409
Above 4000	3	.0433

* Adapted from Table III of *The Measurement of Educational Need*, by Mort, Paul R. Bureau of Publications, Teachers College, Columbia University, 1924.

TABLE 5

DISTRIBUTION OF DISTRICTS WITH GIVEN SIZES OF HIGH SCHOOLS ACCORDING TO THE NUMBER OF HIGH SCHOOL TEACHERS—NEW YORK STATE DATA, 1920–1921. ILLUSTRATION OF THE METHOD OF TABULATING DATA FOR DETERMINING RANGES WITHIN WHICH THE RELATIONSHIP BETWEEN NUMBER OF TEACHERS AND SIZE OF SCHOOL MAY BE EXPRESSED BY A LINEAR EQUATION



*¼ represents the range .13 to .37. **4½ represents the range 4.25 to 4.74. O represents the average number of teachers for schools within the given size range.

4. *Tabulation of Data for the Smaller Schools.* The districts below the division point should be thrown into a table of double entry similar to Table 5. Each row is made a distribution of the number of teachers in schools of a given size range. The average number of teachers for each size range should be determined and indicated with a circle as in Table 5. By inspection the table should then be divided into sections in each of which a straight line will approximate all of the circles reasonably well. These lines should be checked by comparing them with a curved line that is made to sweep through the entire table approximating all of the circles. It is such a line for which the shorter straight lines are substituted. Any range of data that goes off at a tangent to the general trend of all of the data should not be allowed to operate as a major factor in determining sectioning, unless there is evidence that the general trend indicated by the curved line is not the more representative of the true relationship between number of teachers and size of school.

In the case illustrated by Table 5, the table was broken into three sections, 0–29, 30–129, and 130–349.

5. *The Formula for Each Section.* In each of the resulting sections, the formula of the straight line that fits the teacher averages best should be determined. The slope of the line may be found by finding the correlation of the two measures and multiplying it by the ratio of the standard deviation of the teacher totals to that of the size of school totals. The constant term of the equation can be obtained by multiplying the average size of school by the slope and subtracting that result from the average number of teachers.

In applying these results, the first figure (the slope) is multiplied by the size of school that is under consideration and the constant term added to the result. The final result is the number of teachers found on the average in a school of that size in the state.

Table 6 illustrates the application of this procedure to the 0–30 range of Table 5. The slope resulting is .0687, the constant is .67. The formula reads as follows:

$$\left.\begin{array}{l}\text{Number of teachers on}\\ \text{the average in schools}\\ \text{of this size}\end{array}\right\} = .67 + .0687 \times \text{size of school}$$

If this is applied to a school of 25, the result is 2.39 teachers.

TABLE 6

THE LOWEST RANGE OF SCHOOLS CHOSEN FROM TABLE 5 TO ILLUSTRATE THE METHOD FOR DETERMINING THE EQUATION OF THE STRAIGHT LINE OF BEST FIT—THE REGRESSION OF NUMBER OF TEACHERS ON SIZE OF SCHOOL

Size of School—High School Average Daily Attendance	Number of Teachers														Total
	.50*	.75	1.0	1.25	1.50	1.75	2.0	2.25	2.50	2.75	3.0	3.25	3.50	3.75	
0– 4	2	2		1											5
5– 9	4	3	14	4	3	2	1								31
10–14	1	3	6	8	12	11	7	2		2	1				53
15–19	1			5	6	8	12	1	3	3	3		1	1	42
20–24						7	14	6	8	10	3		1	1	50
25–29					2	3	10	7	7	5	7	3			44
	8	8	20	18	23	31	44	16	18	20	14	3	1	1	225

* .50 represents .38 to .62.

Use of Data in Determining the Slope of the Line of Best Fit

a Correlation (Pearson *r*) ..... .705
b Standard deviation of teacher totals ..... .6868
c Standard deviation of size of school totals 7.05
d SLOPE OF LINE REPRESENTING RELATIONSHIP OF NUMBER OF TEACHERS TO SIZE OF SCHOOL IS:

$$a \times \frac{b}{c}, \text{ or } .705 \times \frac{.6868}{7.05}, \text{ or } \ldots\ldots\ldots\ldots .0687$$

Use of Data in Determining the Constant of the Equation of the Line of Best Fit

e Total number of pupils in all districts represented 3,968
f Number of districts 225
g Average size of high schools represented ($e \div f$) 17.7
h Total number of high school teachers represented 424
i Average number of high school teachers in each district ($h \div f$) 1.89
THE CONSTANT OF THE EQUATION OF THE STRAIGHT LINE OF BEST FIT:

$i - (g \times d)$, or $1.89 - (17.7 \times .0687)$, or..... .67

The actual average of all schools in the 20–30 range is 2.4 teachers. The average determined in this manner for schools of any size is affected by the schools above and below so that the actual results obtained progress evenly as one passes from smaller to larger schools. This is doubtless more reliable than the jagged progression one would get from actual averages of each size of school.

Table 7 gives the standards similarly developed for all three sections into which Table 6 was divided. It includes also the relationship between number of teachers and size of school in high schools with an average daily attendance of 350 or more. This last relationship is the one developed in the third step. Since it is used in the same manner as the slope figures, it is included in the column with them.

TABLE 7

THE SLOPE AND CONSTANT DESCRIBING THE LINE OF BEST FIT FOR EACH SIZE RANGE OF HIGH SCHOOLS—HIGH SCHOOLS OF NEW YORK STATE

Average Daily Attendance Ranges Used in Deriving These Standards	The Slope of the Line of Best Fit	The Constant Value in the Equation of the Line of Best Fit
0– 29	.0687	.67
30–129	.0453	1.31
130–349	.0424	2.02
350 and above	.0463	0

The reliability of the sectioning should be checked. If the sectioning is *over-refined,* that is, if there are more sections than are necessary, the measure of educational need resulting is unduly complicated. If it is *under-refined,* that is, if there are too few sections, the measures will not be accurate.

The best check for *over-refinement* of sectioning is the comparison of actual averages with corresponding figures predicted by the formulas obtained from the proposed sectioning, and with results obtained from formulas covering a combination of contiguous sections. That is, the actual teacher averages could be

compared, in the case of Table 5, with the results obtained from the line of best fit from 0 to 29, from the line of best fit for 30 to 129 and for the line of best fit for the total range of 0 to 129. If the line for the total range approximates the actual averages below 30 and above with a degree of accuracy comparable to that of the line for the 0 to 29 range, and the 30 to 129 range, respectively, the sectioning over this range has been too refined.

A linearity test may be used as a test for *under-refinement* of sectioning. This test requires that the coefficient of correlation (Pearson r) and the correlation ratio be obtained for each section. Since the coefficient of correlation has already been obtained for each section, this test requires only the additional work of obtaining the correlation ratios. The difference of these two coefficients for each section must then be divided by the probable error of that difference. In case the result is much less than 3.0 (Blakeman in "Tests for Linearity of Regression in Frequency Distributions," *Biometrika,* Vol. IV, 1905, gives 2.5), the distribution in the section under consideration may be considered linear.

6. *Adjustments between Sections.* If the straight lines of best fit to contiguous sections do not meet at the point of division set up by inspection of Table 5, a district that, because of accession or loss of students, passes from one section to another will find a marked change in the rate of counting its educational need. This can be avoided in such a way that the change will actually lead to refinement of the standards for the schools that are near the bounds of the sections. The method used for correcting this difficulty is to determine the point where the two lines of best fit intersect and use this size of school as the division point of the two ranges to which the standards are to be applied. To do this, take the two sets of values from the equations of two contiguous sections and divide the difference between the constants by the difference between the slopes. The result is a school size which should be used for the point of division between these sections when the formulas are applied.

To illustrate, take the standards for the ranges 0–29 and 30–129 in Table 7. The difference between the constants is 1.31 less .67, or .64. The difference between the slopes is .0687 less .0453, or

.0234. The difference between the constants divided by the difference between the slopes is .64 divided by .0234, or 27.4. This becomes the new upper limit for the smallest schools and the new lower limit for the next to the smallest schools. With these adjustments made for each division point in the ranges of school sizes, Table 7 becomes Table 8.

A word should be said here of the possibility that the resulting division point may be removed unreasonably from the original division point between sections. In such a case the sectioning should be carefully examined. Plotting the various straight lines will be helpful. This condition may be due to over-refinement of sectioning or to taking sections which are not representative of the general trend.

TABLE 8

THE RANGES OF SIZES OF SCHOOLS TO WHICH EACH SET OF STANDARDS GIVEN IN TABLE 7 SHOULD BE APPLIED

	Average Daily Attendance Ranges to Which the Standards Should be Applied	The Slope of the Line of Best Fit	The Constant Value in the Equation of the Line of Best Fit
High Schools	0– 27 in A.D.A.	.0687	.67
	28–244 in A.D.A.	.0453	1.31
	245–517 in A.D.A.	.0424	2.02
	518 or above in A.D.A.	.0463	0

7. *More Convenient Standards.* The standards given in Table 8 applied to a high school of any size gives a figure comparable to that obtained for a high school of any other size. So far as high schools are concerned, they give us the desired measure of educational need. However, since these may all be multiplied or divided by the same number without destroying the relationships existing among them, it is possible to express them in terms of standards more easily applied. The most convenient form will result if all of the standards are divided by the figure representing the relationship between the number of teachers and the size of school in the largest schools. In the case of Table 8, .0463 is the number by

which all should be divided. The result for the largest schools thus becomes unity, and the number of weighted high school pupils is identical with the number of pupils.

Table 9 gives all of the standards of Table 8 expressed in this more convenient form.

TABLE 9

THE STANDARDS GIVEN IN TABLE 8 EXPRESSED IN SUCH A MANNER THAT THE NUMBER OF WEIGHTED HIGH SCHOOL PUPILS IN THE LARGEST DISTRICTS IS IDENTICAL WITH THE ACTUAL AVERAGE DAILY ATTENDANCE

Average Daily Attendance Ranges to Which the Standards Should be Applied		The Number by Which the Average Daily Attendance is to be Multiplied	The Number to Add to the Result Obtained from Use of the Preceding Column
High Schools	0– 27 in A.D.A.	1.48	14.47
	28–244 in A.D.A.	.98	28.30
	245–517 in A.D.A.	.92	43.63
	518 or above in A.D.A.	1.00	0

When these seven steps are carried through for elementary schools, a similar table of standards results from which it is possible to express the relative cost of an equivalent program of elementary education in school districts of various sizes. If the organization were to be further broken up so as to give separate consideration to the junior high school grades, for instance, the same procedure would be followed with respect to such other organization units. In the application of this technique to New York State, there was not ample justification for treating junior high schools separately or for dealing with kindergartens as a part of the minimum program. The elementary grades (one to eight) were considered as a unit. Kindergarten was eliminated from consideration. The standards resulting from the application of these seven steps to elementary schools are given in Table 10.

8. *Expressing Elementary and High School Standards in the Same Unit.* It is necessary to have a common means of expres-

TABLE 10

WEIGHTED PUPIL STANDARDS FOR NEW YORK STATE ELEMENTARY SCHOOLS EXPRESSED IN SUCH A MANNER THAT THE NUMBER OF WEIGHTED ELEMENTARY PUPILS IN THE LARGEST DISTRICTS IS IDENTICAL WITH THE ACTUAL AVERAGE DAILY ATTENDANCE

Average Daily Attendance Ranges to Which the Standards Should be Applied	The Number by Which the Average Daily Attendance is to be Multiplied	The Number to Add to the Result Obtained from Use of the Preceding Column
One-Teacher Districts	0	27.46 *
Two or More Teachers		
Below 142 in A.D.A.	.85	21.14
142 or Above in A.D.A.	1.00	0

* The standard for one-teacher districts is simply the average number of elementary pupils per teacher in the largest districts. This is the figure necessary to grant to the one-teacher school credit for a one classroom unit cost regardless of the number of pupils. In connection with the study from which these techniques are illustrated, the writer developed a method for dealing with one-teacher schools according to the density of population. Inasmuch as one-teacher districts cannot be recognized in any large way in the development of an equalization program, this technique is omitted here.

sion for the standards obtained for different units of organization —in the case used for illustration, for elementary and high schools —so that, for any community, a single figure may be obtained covering the entire cost of the minimum program. The desired adjustment for elementary and high school standards illustrated by Tables 9 and 10 can be made by multiplying the high school standards by the ratio of per weighted high school pupil costs to per weighted elementary pupil costs. This procedure implies the acceptance of the educational opportunity offered on the average to high school pupils as equivalent to the educational opportunity offered on the average to elementary school pupils in the same districts.

The suggested procedure is illustrated by Table 11, which gives the ratio of high school to elementary per pupil costs [4] for New York cities over a period of years. From this table, the high

[4] Since in the large districts the number of weighted pupils is equivalent to the actual number of pupils, these data meet the demands of the proposed procedure.

school per pupil costs were found to be twice the elementary per pupil costs.[5] When the standards of Table 9 are multiplied by this figure, they become comparable to the elementary standards given in Table 10. They are accordingly added to the standards for Table 10 giving Table 12. The headings in Table 12 are worded differently to indicate more effectively the method of applying the standards in measuring educational need.

TABLE 11

THE AVERAGE RATIO OF HIGH SCHOOL CURRENT EXPENDITURE PER PUPIL IN AVERAGE DAILY ATTENDANCE TO ELEMENTARY CURRENT EXPENDITURE PER PUPIL IN AVERAGE DAILY ATTENDANCE

Year	3 First-Class Cities	6 Second-Class Cities	36 Third-Class Cities	Total
1910–11	2.23	2.05	2.20	2.18
1915–16	2.02	2.24	2.11	2.12
1916–17	2.49	2.15	2.24	2.24
1917–18	2.59	2.33	2.39	2.40
1918–19	2.34	2.22	2.17	2.19
1919–20	2.25	2.00	2.00	2.02
1920–21	1.97	1.75	1.79	1.80
1910–21 (7 yrs.)*	2.24	2.06	2.06	2.07
1918–21 (3 yrs.)*	2.15	1.95	1.94	1.95

* These were determined by taking the total cost per pupil over these years for each city. The figure given is the average of the ratios obtained from these totals.

9. *Costs That Are Not Proportional to the Number of Classrooms.* The results of the above procedure care only for those phases of the minimum program the costs of which are proportional to the number of classrooms, or teachers. They would care

[5] This arises from two sources, smaller classes in the high school—21.6 pupils as compared to 27.46 in the elementary classes—and the higher per teacher cost of high school education. The relationship of per teacher costs that may be derived from this is 1.57. In applying the standards used for illustration here to actual legislation in New York State, this relationship was considered too high. Accordingly the per teacher ratio was reduced from 1.57 to 1.33. This is equivalent to a reduction in the per pupil figure from 2.0 to 1.68.

for the complete cost (current and capital, or either alone[6]) of all of the phases of the minimum program that would be chosen under the first criterion proposed in Chapter II except textbooks and supplies provided at public expense. Where this item is not negligible, as many weighted pupils should be added for it as are obtained by dividing the cost allowed for this item by the per weighted pupil cost of the minimum program as determined in Chapter III. If it is neglected, it will be computed on the classroom basis rather than on the per pupil basis. With so small an item, the difference will be very slight.

Elements of the minimum program chosen according to the second and third criteria of Chapter II, however, may not be neglected so readily. The cost of transportation in rural districts is the outstanding element that can be established by these criteria as a part of the minimum program. No technique has as yet been developed that will make possible an exact handling of this phase of the problem. As a makeshift, as much of the actual expenditure for this item should be recognized at face value as is possible without evil effects. The amount thus recognized for a community should be divided by the per weighted pupil cost of the minimum program. The result will be the number of additional weighted pupils to allow for that community. To illustrate, in the case of a minimum program calling for an expenditure of $70 per weighted pupil, the cost of transportation should be divided by 70, or multiplied by .01428. This is the figure given for transportation in Table 12.

In case of recognition being given for pre-first grade work for non-English-speaking children, the attendance in such classes can be counted as other elementary average daily attendance unless

[6] This would be true so far as the standards in Tables 9 and 10 are concerned upon the assumption that capital outlay, in the long run, bears approximately the same relationship to current expenditure. It would be true for the final weighted pupil standards (Table 12) upon the assumption that the relative per pupil costs for high school and elementary capital outlay would be the same as for current expenditure. This would be true so far as the relationship of size of classes is concerned and would tend to be true so far as the classroom expenditure is concerned, because of freer provision for laboratory and other special work.

TABLE 12

THE METHOD OF MEASURING THE EDUCATIONAL TASK FACED BY COMMUNITIES—STANDARDS FOR MEASURING EDUCATIONAL NEED IN TERMS OF WEIGHTED PUPILS *

Description of School		Pupil Allowance	District or School Allowance †
		Number of pupils in average daily attendance in district (or school) † should be multiplied by the standard for districts (or schools) † with the given average daily attendance	Amount to be added for each district (or school) † to the product obtained by use of the preceding column ‡
Elementary Schools	One-Teacher Districts ..	0	27.46
	Two or More Teachers		
	Below 142 A.D.A. ...	.85	21.14
	142 or above A.D.A. .	1	0
High Schools	0– 27 A.D.A.	2.97	28.94
	28–244 A.D.A.	1.96	56.59
	245–517 A.D.A.	1.83	87.26
	518 and above A.D.A. .	2.00	0

This table reads: To find the weighted pupils in a one-teacher district, multiply the number of pupils by 0 and add 27.46 (for each school). To find the weighted pupils in an elementary school with two or more teachers, if the school has an average daily attendance of less than 142, multiply the average daily attendance by .85 and add 21.14. If it is a consolidated school (in a rural district), add to the above amount .01428 times the cost of transportation.

* Adapted from Table XXIV, of *The Measurement of Educational Need*, by Paul R. Mort.

† Each school as a unit if in open country; each district as a unit if in a city or village. An illustration will make the reason for this clear. A city or large village might, because of local policy alone, develop small elementary schools where they are not necessary. If each school were considered as a unit, the weighting the number of pupils would receive would be as high as in those districts where such small schools are necessary and higher than that received in the other larger communities. This means that where sparsity of population does not require small schools, providing transportation is not furnished, all of the pupils in the district should be considered as though in one school. That is, the total average daily attendance in the elementary schools of the city or village is multiplied by the pupil allowance and the district allowance is counted but once. In the case of a rural district, however, each school should be counted separately. Its average daily attendance should be multiplied by the pupil allowance for schools of its size and the school allowance added.

‡ For rural districts, add .01428 times the expenditure for transportation.

§ Average daily attendance.

there is justification for a markedly different size of class. In case there is considerable variation in size of class, they can be treated as a separate organization just as elementary and high schools have been treated.

Where the minimum program requires the establishment throughout the state of classes for mental or physical defectives so that compliance with the requirement often occasions small classes, these may likewise be treated as separate units of organization. In the New York State equalization law, each class for the mentally retarded is treated as a single classroom unit, regardless of the number of pupils.

The results of the entire procedure, with notes as to their interpretation for measuring the educational need, of school districts are given in Table 12.

THE TYPICAL TEACHER

In the above procedure, the problem of measuring educational need is attacked as the problem of correcting the number of pupils as a measure. The fact was pointed out that all but a comparatively few costs are much more nearly proportional to the number of teachers. The ratio of teachers to pupils in each size of school was therefore used as the weighting necessary to correct the number of pupils as a measure of such costs. The weightings illustrated for high schools by Table 8 are the number of teachers typical for each size of school and may be used as units of educational need without the changes resulting in Table 9. If we had omitted the seventh step and carried on the procedure in a similar fashion, we should have had, instead of the pupil standards given in Table 12, the teacher standards given in Table 15.

The steps for reaching the teacher standards illustrated by Table 15 therefore parallel the steps for developing the weighted pupil standards.

The First Six Steps. The necessary data and the treatments are identical with the first six steps for the development of weighted pupil standards. Table 8, rewritten as typical teacher standards, becomes Table 13. It serves the same purpose for typical teacher units as Table 9 serves for weighted pupil units.

Table 14, likewise, corresponds to Table 10. It is the result of the first six steps applied to elementary schools.

TABLE 13

STANDARDS FOR USE IN DETERMINING THE NUMBER OF TEACHERS TYPICAL FOR A HIGH SCHOOL OF ANY SIZE IN NEW YORK STATE

Size of High School (Average Daily Attendance)	Pupil Allowance (Slope)	District or School * Allowance (Constant)
	Number of pupils in average daily attendance in district (or school) * should be multiplied by the standard for districts (or schools)* with the given average daily attendance	Amount to be added for each district (or school)* to the product obtained from the preceding column
High Schools { 0– 27 in A.D.A.	.0687	.67
28–244 in A.D.A.	.0453	1.31
245–517 in A.D.A.	.0424	2.02
518 or above in A.D.A. .	.0463	0

* Each school is dealt with as a unit if it is in the open country; each district as a unit if a city or village.

TABLE 14

STANDARDS FOR USE IN DETERMINING THE NUMBER OF TEACHERS TYPICAL FOR AN ELEMENTARY SCHOOL OF ANY SIZE IN NEW YORK STATE

Description of Elementary School	Pupil Allowance (Slope)	District or School * Allowance (Constant)
	Number of pupils in average daily attendance in district (or school) * should be multiplied by the standard for districts (or schools)* with the given average daily attendance	Amount to be added for each district (or school)* to the product obtained from use of the preceding column
One-Teacher Districts	0	1.00
Two or More Teacher Schools		
Less than 142 in A.D.A.	.03098	.77
142 or more in A.D.A.	.03641	0

* Each school is dealt with as a unit if it is in the open country; each district as a unit if a city or village.

7. *Expressing Elementary and High School Standards in the Same Unit.* This step is similar to the eighth step in the development of weighted pupil standards. The high school standards given in Table 13 are multiplied by the ratio of high school per teacher cost to elementary per teacher cost. This may be obtained from a table similar to Table 11 with the costs expressed in teacher units, or it may be derived from the result obtained from per pupil cost figures by eliminating the effect of the difference in average size of class in elementary and high schools. In using the latter procedure, the ratio of high school per pupil cost to elementary per pupil cost found in the case of Table 11 to be 2 to 1, is divided by the ratio of size of class in high schools to that in elementary schools, which in the case of New York State is 27.46 divided by 21.6. The resulting figure is the correction for the high school typical teacher standards illustrated by Table 13. For New York State, the resulting figure is 1.573.

Multiplying the high school standards given in Table 13 by 1.573, and adding the resulting standards to Table 14, we obtain the typical teacher standards given in Table 15.

8. *Costs That Are Not Proportional to the Number of Classrooms.* The ninth step for the development of weighted pupil standards explains the procedure with this category of costs. Nothing further need be said here regarding the theory involved. The only change in procedure is the substitution of the per teacher cost figure for the per pupil cost figure in making such adjustment as that required by transportation. The illustration involving a minimum program costing $70 per weighted pupil would be expressed in terms of 27.46 times that amount per teacher. The resulting multiplier for the cost of transportation, as given in Table 15, is .00052.

Each of the standards in this table is the same as the corresponding one in Table 12, multiplied by 27.46, which is the number of weighted pupils per typical teacher in the state. These two sets of standards are therefore used in the same manner. They differ only as the yard differs from the inch. By use of the relationship existing between them, a plan developed in terms of one of these units may be interpreted, if occasion demands, in

terms of the other. In developing the New York State equalization plan, the weighted pupil was used. The legislation based upon the plan, however, is expressed in terms of typical teachers.

TABLE 15

STANDARDS FOR MEASURING EDUCATIONAL NEED IN TERMS OF TYPICAL TEACHERS

Description of School		Pupil Allowance (Slope)	District or School * Allowance (Constant)
		Number of pupils in average daily attendance in district (or school) * should be multiplied by the standard for districts (or schools) * with the given average daily attendance	Amount to be added for each district (or school) * to the product obtained by use of the preceding column †
Elementary Schools	One-Teacher Districts ..	0	1.00
	Two or More Teachers		
	Below 142 A.D.A.‡...	.0310	.77
	142 or above A.D.A. .	.0364	0
High Schools	0–27 A.D.A.	.1081	1.054
	28–244 A.D.A.	.0713	2.060
	245–517 A.D.A.	.0667	3.177
	518 and above A.D.A. .	.0728	0

This table reads: To find the number of teachers typical for a one-teacher district, multiply the number of pupils by 0 and add 1. To find the number of teachers typical for an elementary school with two or more teachers, if the school has an average daily attendance of less than 142, multiply the average daily attendance by .031 and add .77. If it is a consolidated school in a rural district, add to the above amount .00052 times the cost of transportation.

* Each school is dealt with as a unit if it is in the open country; each district as a unit if a city or village.

† For rural districts, add .00052 times the cost of transportation.

‡ Average daily attendance.

COMPUTATION OF EDUCATIONAL NEED ILLUSTRATED

A DETAILED illustration is given here to make clear the use of the standards given in Tables 12 and 15. In this illustration, the weighted pupil standards (Table 12) are used, but the typical teacher standards would be applied in the same way. The result obtained for each community—a single figure—is used in the re-

search preliminary to preparing the actual legislation. The extent of its usefulness is indicated by Table 1.

Suppose a district is faced with the task of carrying the educational load outlined below:

Kind of School	Number of Schools	Number of Pupils in Average Daily Attendance	Weighted Pupils
One-teacher—rural	3	8, 12, and 20	82
Elementary	1	125	127
High	1	50	155
Total	5	215	364

It has been found that one-teacher rural schools, regardless of the number of pupils attending them, cost as much on the average as it costs to provide similar educational facilities for 27.46 pupils (Table 12, top line) in village or city elementary schools of more than 142 pupils. The 40 pupils in these three rural schools are therefore equivalent, in cost, to three times 27.46, or 82 weighted pupils.

Elementary schools having two or more teachers require a lower expenditure per pupil, the greater the number of pupils, until that number exceeds 142. From that point, the cost is directly proportional to the number of pupils attending. The elementary school of 125 pupils will cost the community as much as to provide elementary education for 127 pupils in an elementary school of more than 142 pupils. (Table 12: $125 \times .85$ plus $21.14 = 106.25$ plus $21.14 = 127.39$ weighted pupils.)

In small high schools, as in small elementary schools, the cost per pupil is greater than in large schools. Table 12 shows that it was found necessary to divide high schools into four size groups in order to express this varying cost with sufficient accuracy to translate the numbers of high school pupils into the equivalent numbers of weighted pupils. The 50-pupil high school will cost as much as it would cost to provide elementary schooling for 155 pupils in an elementary school of more than 142 pupils. (Table

12: 50×1.96 plus 56.59=98.00 plus 56.59=154.59 weighted pupils.)

Therefore, this district, with a total of 215 pupils attending one high school and four elementary schools, faces as heavy an educational load, so far as cost is concerned, as it would face if it were a village and had a total of 364 pupils in elementary schools.

A city of 75,000 population may be taken as another illustration of the method used in this report for translating into weighted pupil units the educational load carried by any community.

Suppose there are seventeen elementary schools and two high schools having in attendance the number of pupils shown below:

Kind of School	Number of Schools	Number of Pupils in Average Daily Attendance
Elementary	7	500
Elementary	10	7,500
High	1	300
High	1	900
Total	19	9,200

In the case of a city or village district, unless there are schools actually in the open country, the district is considered as a single unit. In this case, its elementary attendance would be 7,500 plus 500, or 8,000. Its high school attendance would be counted as 900 plus 300, or 1,200. The elementary pupils would count as 8,000×1 plus 0, or 8,000 weighted pupils (elementary schools above 142 in average daily attendance, Table 12). The high school pupils would count as 1,200×2 plus 0, or 2,400 weighted pupils (high schools above 500 in average daily attendance, Table 12). The total task of the city would be counted as 8,000 plus 2,400, or 10,400 weighted pupils.

The use of a single unit for measuring educational need is illustrated by Table 1, which serves as a basis for the sort of development described in Chapters III and IV.

THE MEASUREMENT OF EDUCATIONAL NEED AND EQUALIZATION LEGISLATION

If success in equalizing educational opportunity were required to await success in writing Table 12 or Table 15 into a state aid law, it would probably prove an idle dream. Luckily, this is not necessary. The principles involved in these tables are simple, and if they are divorced from the technical language necessary to explain their development, the layman can grasp them without difficulty. Since there is no need in the legislation for having educational need expressed in a single unit, each organization can be dealt with separately. In the case of New York State, this means treatment of elementary school units, high school units, and transportation units. This alone is a great step toward simplicity.

In dealing with elementary or high schools, the layman can readily see that cost is roughly proportionate to the number of pupils. He can as readily see that the measure is a better measure if some adjustment is made to compensate those communities that are required by the sparsity of population to have smaller classes and thus to increase the cost. If he is given a demonstration of a plan for making such compensation in terms of the manner in which it affects the communities with which he is intimately acquainted, no technical demonstration of the method is demanded. He will grant the validity of this pupil measure which we have called the 'weighted pupil,' for it confirms his own experience. On the other hand, if the teacher unit is made the means of approach, the layman will grant the validity of the teacher measure without the statistical proof that the cost of education is proportional to the number of teachers. He will not so readily see the need for limiting the number of teachers to be counted in a given community by basing the number allowed on the school attendance, however. This is not so near his experience. Some simple demonstration of the great variation in the number of teachers in schools of the same size will show that the teacher measure without any limitations is grossly unfair. Table 5 gives a wealth of such data. It is not uncommon to find schools with two or three times as many teachers as other schools of the same size. Take

for instance the 30–39 group in Table 5. One school allots 1¾ teachers to high school instruction whereas another allots 5. An item of information of this sort is sufficient to make the layman see the need for some sort of limitation on the number of teachers counted.[7]

In the development of the New York State Equalization Bill passed in the 1925 Legislature, it was considered advisable to express educational need in terms of teachers because much of the state aid legislation was expressed in terms of teachers. In Dr. Singleton's proposal for Georgia, however, he deals with pupils because of the fact that previous thinking along this line in Georgia has been in terms of pupils. There is, of course, no actual difference so far as state aid is concerned. The unit should be chosen that can be explained most easily.

As indicated in the first paragraph in this section, Tables 12 and 15 can be discarded when it comes to drafting the legislation. Instead, the tables that deal with elementary and high school pupils or teachers are used, and transportation is likewise dealt with separately. For the pupil basis, Tables 9 and 10 should be used; for the teacher basis, Tables 13 and 14.

Since, as indicated above, the teacher approach is used in the New York Equalization Law, it will serve to illustrate the method of writing the standards given in Tables 13 and 14 into legislation. The whole plan of equalization is defined in terms of elementary and high school teachers. After the plan for deriving state aid for localities is described, the following limiting paragraphs appear:

> The number of elementary and high school teachers which is made the basis of the distribution of the equalization quota as herein provided

[7] It is of interest that the gross unfairness of the teacher basis for distributing state aid has been so often overlooked. The differences in treatment for poor districts that tend to have few teachers and wealthy districts that tend to have many are greater than the differences caused by different sizes of classes between the sparsely settled territory—which is not always poor—and the thickly settled territory—which likewise is not always rich. It is, of course, accounted for by the confusion caused by the 'reward for effort' policies of the past.

shall be determined by the commissioner of education in the following manner:

In a district having an average daily attendance of more than 135 in grades 1 to 8 inclusive, one teacher shall be counted for each 27 of such pupils in average daily attendance. In districts having an average daily attendance of 135 or less in grades 1 to 8 inclusive, two teachers shall be counted for the first 40 of such pupils in average daily attendance, and one teacher for each 32 pupils in excess of 40. The pupils enrolled in special classes organized under sections 578 and 1020 of this chapter shall not be included in computing the average daily attendance, and the teachers employed to teach such special classes shall be included in the number of elementary teachers to be computed as herein provided.

In a district having an average daily attendance in a high school or academic department of 35 or more, three high school teachers shall be counted for the first 35 of such pupils in average daily attendance, and one teacher for each additional 22 pupils in average daily attendance. In districts having an average daily attendance in a high school or academic department of less than 35, two teachers shall be counted for the first 20 of such pupils in average daily attendance, and one teacher for each additional 15 pupils in average daily attendance.[8]

These paragraphs show how the standards given in Tables 13 and 14 may be expressed in a simple manner. In spite of their simplicity, that they are highly accurate may be seen from a few illustrations. From the rule given in the law governing the number of high school teachers to be counted in schools with 35 or more pupils, it is evident that a school with 35 pupils is allowed three high school teachers. If we refer to Table 13 for the standards applicable to a district with a high school average daily attendance of 35, we find that we should multiply the 35 by .0453, obtaining as a result 1.586. To this result 1.31 should be added, giving 2.996 units. Again, a school with an average daily attendance of 101 is allowed 3 units for the first 35 pupils and three for the additional 66, or a total of 6, according to the law. According to Table 13, it should be allowed $.0453 \times 101$ plus 1.31, or 5.88 units—an error of 2 per cent. Similarly, for a school of 474, which is in that neighborhood where the error is the greatest, there is a 4 per cent error. For a school of either 400 or 600, the error is approximately 3 per cent. For a school of 1,000, or

[8] Education Law of the State of New York, 1925, Sec. 491b.

larger, it is less than 1 per cent. For 20 pupils, the error is 1 per cent; for 30 pupils, it is approximately 2 per cent.

The error in the method of counting elementary pupils varies from 0 to a little more than 1.5 per cent.

Although these errors are small, it is of interest that the law provides for the introduction of greater accuracy, as well as for corrections that changing conditions may demand, by the following provision which follows the paragraphs quoted above:

> The board of regents may, on and after August first, nineteen hundred and twenty-seven, adopt a rule changing the ratios to be used in determining the number of elementary and high school teachers as the basis on which the amount of state aid is to be allotted under this section.[9]

There is danger, of course, in using the term 'teacher' where it is meant not as an actual teacher but rather as a unit of the total cost of the minimum program. The danger may be avoided by such provisions as the following that follow immediately after the rules for determining the number of elementary and high school teachers.

> If the number of elementary or high school teachers employed is less than the number as above computed, and no adequate provision is made for the instruction of such pupils, the commissioner of education may in his discretion use the actual number of teachers employed, or any intermediate number between such actual number and the number determined as above computed, in ascertaining the amount of state aid to be apportioned as provided in this section.[10]

This may be contrasted with the provision in the Maryland regulations for determining state aid that calls for the counting of the actual number of teachers, unless that actual number exceeds the number set by the limit of one teacher to every 40 pupils in average daily attendance. The above provision disentangles the whole matter of counting educational need from the local policies as to provision of teachers. It recognizes the possibility that a school with larger classes and good teachers may be offering

[9] *Ibid.*
[10] *Ibid.*

better educational opportunities than schools with smaller classes. The Maryland provision would penalize New York City seriously because it has a comparatively large ratio of pupils to teachers—yet who could say that the New York City schools are not offering a better educational opportunity than the meager minimum the law provides?

Another provision that emphasizes that the number of teachers is simply an index of the cost of the minimum program is the following:

> The apportionments of additional teachers' quotas provided for in this section or in section four hundred and ninety-one-b of this chapter, are for the purpose of aiding city, union free and common school districts in paying the increased salaries of teachers as provided by chapter six hundred and eighty of the laws of nineteen hundred and twenty and the cost of school maintenance . . .[11]

The above illustration indicates how the typical teacher standards may be written in a form that looks simpler than the tables of standards. The weighted pupil standards may be similarly treated. If the method given in the New York Law for computing the number of high school units had been written in the following manner, it would have given almost identical results, expressed in weighted pupil units:

In a district having an average daily attendance in a high school or academic department of 35 or more, add 41 to the average daily attendance. In districts having an average daily attendance in a high school or academic department of less than 35, each of the first 20 pupils shall count 2.2 pupils and each additional pupil shall count 1.5 pupils.

[11] Education Law of the State of New York, 1925, Sec. 491*a*.

CHAPTER IX

CHOICE OF THE OPTIMUM KEY DISTRICT FOR DETERMINING THE LOCAL RATE OF CONTRIBUTION [1]

The advantage that arises from choosing as a *key district* a district other than the wealthiest may be determined by comparing the state funds required with those required when the wealthiest community is used as the key district. The formula [2] given below makes it possible to determine with close approximation the percentage of the total cost that will fall to the state, whatever district be chosen as the key district:

$$\text{Percentage of total cost of the minimum program to be provided from state funds} = 100 - \frac{\text{Wealth per unit of educational need in the state as a whole}}{\text{Wealth per unit of educational need in the district chosen as the key district}}$$

In the case of New York State, the full valuation of property per weighted pupil in the state as a whole was found to be $10,419. That in the wealthiest district was found to be $71,159. The result from use of the wealthiest district as the key district was therefore

$$100 - \frac{10{,}419}{71{,}159}, \text{ or } 85 \text{ per cent.}$$

When the wealthiest large district is used as the key district, $13,461 is substituted for $71,159, giving 22.6 per cent as the percentage of the total cost to be provided from state funds.

[1] Referred to in Chap. IV, p. 27.

[2] The development of this formula is given in the *Report of the Special Joint Committee on Taxation and Retrenchment*, Appendix VI. J. B. Lyon, Albany, 1925.

The degree to which inequality of burden is introduced is less easily measured. To obtain this, there must be available an array, similar to Table 1, of all the wealthier districts of the state arranged according to their wealth per unit of educational need. For each of these districts, there should be available data on: (1) ability to pay taxes per unit of educational need; (2) total value of taxable property; and (3) number of units of educational need. For the state as a whole, the total value of taxable property should be obtained. With these data available, the inequality introduced by choosing as a key district a district other than the wealthiest may be measured in terms of the following:

a. The number of communities undertaxed.
b. The amount of taxes these communities avoid paying.
c. The increase of burden on the other communities.

The number of communities undertaxed is the number of communities with more wealth per unit of educational need than the key community.

The amount these communities avoid paying depends upon the cost of the minimum educational program. It is obtained for each of these communities by multiplying its wealth by the difference between the rate necessary in the key community to raise the minimum program and the corresponding rate for the given community. For all of these communities, it can be found by subtracting from the rate necessary in the key community, multiplied by the wealth in all wealthier communities, the cost of the minimum program in all of those communities.

The third measure suggested, the increase of burden on the other communities, is obtained by dividing the above result by the total cost of the minimum program throughout the state.

Table 16 gives the suggested measures for comparing the relative advantages and disadvantages of choosing each of four districts as the key district for New York State. They were obtained by applying the above procedures to the data given in Table 1, Chapter III. Long Beach is the wealthiest district. It is the one that should be chosen if the burden is to be completely equalized. New York City is the seventeenth in wealth. It was

chosen as the key district in determining the local rate of contribution to the minimum program demanded by the present equalization law, because the advantages seemed to outweigh the disadvantages. It may be seen from these data that while the state fund required diminished rapidly as less and less wealthy communities were chosen, the inequality remained negligible. The small amount of inequality introduced by choosing New York

TABLE 16

DATA FOR USE IN COMPARING THE EFFECTS OF ADOPTING UNIFORM LOCAL RATES OF CONTRIBUTION BASED UPON THREE DISTRICTS OTHER THAN THE WEALTHIEST WITH THAT OF ADOPTING THE RATE BASED UPON THE WEALTHIEST DISTRICT—NEW YORK STATE

	District Chosen as Key District			
	Long Beach—Wealthiest City, Village or Supervisory District	Harrison—7th in Wealth	Westchester, Supervisory District No. 4—11th in Wealth	New York City—17th in Wealth
For Determining Relative Advantage				
Percentage the state fund must be of the total cost of a program equalized on the small fund basis	85%	46.5%	33.3%	22.6%
State fund required to equalize a $58.50 program by the small fund method, in millions of dollars	96	53	38	26
For Determining Relative Disadvantages				
Number of communities that would be required to raise less locally than the uniform local rate, to support the desired minimum program	0	6	10	16
Amount these communities would avoid paying because the local rate would not be based on the wealthiest community in the state, in thousands of dollars ..	0	172	414	744
Increased burden on state as a whole due to this undertaxing of a few most able communities	0	.13%	.30%	.55%

City as the key district is due to the fact that only four per cent of the wealth of the state lies in the wealthier districts. To use a community much poorer than New York City would introduce great inequality on account of the vast amount of wealth in New York City that would be partially relieved from supporting the minimum program.

The problem of determining the local rate of contribution toward the support of the minimum program resolves itself finally into that of determining the rate required to support the minimum program in the key community. It is but a short step from this position to the conclusion that the local rate of contribution for the minimum program that is partially supported on the large fund method should be the rate necessary in the key district to support that part of the minimum program not already supported by state aid. This may be expressed in a formula that will apply in either case:

$$\text{Local rate of contribution} = \frac{\text{Cost of the minimum program per unit of educational need} - \text{Large fund state aid per unit of educational need}}{\text{Wealth of the key community per unit of educational need}}$$

Applying this to New York State for a program costing $70 per weighted pupil and equalized entirely on the small fund plan, New York City being the key community, we obtain:

$$\text{Local rate of contribution} = \frac{70.-0}{13{,}461} = .0052, \text{ or } \$520 \text{ on each } \$100.$$

If $21 per weighted pupil were to be equalized by the large fund method and the remaining $49 by the small fund method, the local contribution required would be:

$$\text{Local rate of contribution} = \frac{70-21}{13{,}461} = .00364, \text{ or } \$3.64 \text{ on each } \$100.$$

CHAPTER X

THE OPTIMUM COMBINATION OF LARGE AND SMALL FUND METHODS OF DISTRIBUTING STATE SUPPORT WHEN OLD GRANTS ARE CONTINUED [1]

As was indicated in the discussion in Chapter IV, the old grants can be considered as equalizing an educational offering equivalent to the amount per unit of educational need granted to the least favored community. A provision that would increase the minimum paid by the large fund plan would decrease the amount to be financed by the small fund plan. Up to a certain point the amount of added state aid necessary to raise the minimum under the old grants will be smaller than the amount of state aid required to equalize the same amount of the program by the small fund method. This point should be found by comparing the cost of raising the minimum, dollar by dollar, with the amount of state aid required to equalize each dollar. In the illustration given in Chapter IV, $11.50 of the $70 per weighted pupil was to be equalized by the large fund method and $58.50 by the small fund method. Twenty-two and six-tenths per cent of the cost of each of these $58.50 per weighted pupil in the state would be provided by the state. This amounts to $434,000.[2] As a matter of fact, analysis shows that it will take less state fund to equalize $7.50 of these $58.50 simply by increasing the state aid under the old plan for the less favored communities so that none receives less than $19 per weighted pupil. So many communities already receive the larger amounts that it takes less than 22.6 per cent of $1 per weighted pupil in the whole state to make up the deficits to these communities. To go from $19 to $20, however, takes more than $434,000.

[1] Referred to in Chap. IV, p. 29.

[2] Since there were 1,922,232 weighted pupil units in the state, the cost of a one-dollar education would be $1,922,232; 22.6% of this is $434,000.

Table 17 shows the cost of raising the present minimum dollar by dollar. Since, so far as the state fund is concerned, each of the amounts must be compared with the $434,000 necessary to equalize a dollar on the small fund basis, it is obvious that the last step that can be made at a saving to the state fund is the $18 to $19 step. From this standpoint, the best minimum is $19. To go from $19 to $20 would require an addition to the state fund of $525,000, whereas it would lop off only $434,000.

TABLE 17

ADDITIONAL STATE AID NECESSARY TO RAISE THE MINIMUM AMOUNT PER WEIGHTED PUPIL DOLLAR BY DOLLAR *

To Raise Minimum Received Under Present State Aid:	Requires Additional State Aid Amounting to:
From $12.00 to $13.00	$ 5,851
From 13.00 to 14.00	6,996
From 14.00 to 15.00	16,509
From 15.00 to 16.00	61,963
From 16.00 to 17.00	136,134
From 17.00 to 18.00	274,159
From 18.00 to 19.00	407,944
From 19.00 to 20.00	525,101
From 20.00 to 21.00	878,452†
From 21.00 to 22.00	1,649,496
From 22.00 to 23.00	1,711,322
From 23.00 to 24.00	1,717,314
From 24.00 to 25.00	1,740,428
From 25.00 to 26.00	1,794,068

* Derived from Table 3. If no community received less than $12.00, there would be 5,007 plus 392 weighted pupils receiving $12.00. Since there would be a deficit of a dollar for each of these, it would amount to $5,399. To this would be added the $452 to make up the 50 cent deficit for the 903 weighted pupils now receiving $12.50. This result is $5,851.

† Since the figuring of New York City on the nearest 50 cent step would introduce a large error, it is considered as it actually occurred—$20.74 per weighted pupil.

There is another consideration that justifies raising the minimum still higher, even though it will require more state aid than would be required if the point reached by the above procedure were taken as the limit of the extension of the old grants. The decrease in state fund has not been the only advantage from

increasing the minimum of the old grants. The local burden has been decreased as well. The minimum can be raised to the point where the advantage of decreasing the local support is outweighed by the disadvantage of increasing the state aid fund over what would be required under the small fund method. In the New York State illustration, for every 58.5 cents increase in the minimum of the present grants, the burden carried locally by all of the communities in the state is decreased one per cent over the burden required to support the $58.50 part of the program.[3] Raising the minimum from $19 to $20, for instance, makes $1,397,000 ($1,922,232 less $525,101)[4] more of the present fund available toward the support of the minimum program. The net effect of raising the minimum from $19 to $20 is a $90,000 increase in the state fund, but $1,397,000 less burden, state and local, required to support the minimum program. Twenty dollars is obviously a better minimum than $19. Similarly, to go from $20 to $21, although it involves a net increase in the state fund of half a million dollars ($878,452 less $434,000), results in a net decrease, state and local, of a million dollars, so far as supporting a $70 program is concerned ($1,922,232 less $878,452). Twenty-one dollars is thus a more satisfactory minimum than $20. To go from $21 to $22, however, results in a net increase in the state fund of $1,200,000 ($1,649,646 less $434,000), while it decreases the burden of the minimum program, state and local, less than $300,000 ($1,922,232 less $1,649,646). The advantage gained

[3] Local communities are supporting 77.4 per cent of $58.50. A 58.5 cents increase in the minimum of the present plan lops off 58.5 cents from this and thus decreases it 1 per cent.

[4] If it takes but $525,101 to raise deficient communities from $19 to $20, this is an indication that all weighted pupils in the state, excepting 525,101, have already received $1 each. Since there are 1,922,232 in the state, it means that the present system has allotted, on the $19 to $20 level, $1,922,232 less $525,101, or $1,397,131, already. If $19 is taken as the minimum, this amount ($1,397,131) is not available for equalization. Payment of the extra $525,101 makes no community receive less than $20; so the $1,397,131 already paid becomes effective for payment toward the $70 minimum. The amount made available by adding each additional dollar is obtained by subtracting the amount in Table 17 from $1,922,232

in burden does not offset the large increase in the state fund. Twenty-one dollars is therefore the best minimum.

Whatever minimum program is decided upon, the optimum use of the present state aid demands that the present plan be supplemented so that no community shall receive less than $21 per weighted pupil before the small fund part of the plan becomes effective. This is another way of saying that the small fund plan should cover the minimum program less $21 per weighted pupil. If the minimum program is to be $70, the small fund part of the system should be planned to equalize $49 per weighted pupil. In the case of New York State, $21 is the figure to be inserted for large fund state aid per unit of educational need in the formula for determining the local rate of contribution, given in Chapter IX.

This would not hold in case the state aid funds, under the present system, were increased. The amount of the general increase would be added to the $21. This may be illustrated by the situation that actually developed in the New York legislation. An educational level approximating $43 per weighted pupil was set up as the level the burden of which the state would seek to equalize. But before equalization was applied, the old type of state aid was increased for all communities a minimum of $50 per teacher, or approximately $2 per weighted pupil. By raising the amount per weighted pupil to be cared for by the large fund method from $21 to a little less than $23, practically all of this additional state aid could be made to contribute to the support of the minimum program. This was provided for in determining the local rate of contribution. The substitution in the formula for determining the local rate of contribution (Chapter IX) of the $43 for the cost of the minimum program and of the $23 for the large fund state aid per unit of educational need, resulted in the local rate of contribution of $1.50 per thousand dollars full valuation of property.

CHAPTER XI

AMOUNT OF STATE SUPPORT REQUIRED

If complete support of the minimum program is to be provided by the state, the total state fund required will be equal to the number of units of educational need throughout the state, multiplied by the unit cost of the minimum program. For instance, in the case of New York State, a minimum program costing $70 per weighted pupil would require 1,922,232 times $70, or a total of $134,556,240.

When the small fund method is used alone, it will be that percentage of the total cost of the program determined by use of the formula on page 75. To this must be added the amount which communities wealthier than the key district avoid paying by virtue of the fact that the minimum program may be supported by a rate of taxation less than that required in the key district and all less wealthy communities. The method of obtaining this amount is explained on page 73. In the case of New York State, when New York City is used as the key community, 22.6 per cent of the total cost must be borne by the state. Since the total cost of a $70 program is $134,556,240, the major part of the state aid is 22.6 per cent of this amount, or $30,409,710. To this amount must be added the $890,000,[1] the paying of which is avoided by the sixteen districts wealthier than New York City.

When the large fund and small fund plans are combined, the problem is more complicated because of the necessity of determining the effect of the present state fund toward equalization. The additional state aid required will be the deficit after the local contribution and the contribution to the support of the

[1] The figure given in Table 16 ($744,000) is for a $58.50 program. The present illustration is the case of a $70 program equalized by the small fund method alone.

minimum program from the present state aid are applied. The local contribution will be the yield of the local minimum rate of contribution applied to the full valuation of property, less the amount which the wealthiest communities, such as the sixteen wealthiest communities in New York State, avoid paying for the reason that so high a local contribution as the established minimum is not required in order that they may have adequate funds available to support the minimum program. In the case of the New York State plan used as an illustration, the local contribution would be $3.64 on each thousand dollars of wealth, or $72,800,000, if all communities contributed at that rate. The amount the wealthiest districts avoid paying would be obtained as explained in the development of Table 16. Table 16 gives the amount as $744,000 when $58.50 per weighted pupil is being supported according to the small fund plan. Since the case we are using here calls for only $49 to be equalized in that manner, the amount the wealthy communities avoid paying is 49/58.5 of $744,000, or $623,000. The actual amount raised locally throughout the state is therefore $72,800,000 less $543,000, or $72,257,000.

All of the state aid under the present system will go toward the support of the minimum program except any amount that is received by any communities from the present system in excess of the difference between the cost of the minimum program in those communities and the amount of the local contribution in such communities. If all districts in the state are arranged according to wealth per weighted pupil in a table such as Table 1, a few minutes' work will suffice to locate all of those communities that have any excess. Those communities wealthier than the key district must be dealt with differently from the others. What they avoid paying, granting them the minimum amount (such as $21 per weighted pupil) from the large fund state aid, has already been taken into consideration. For these communities, only the excess of this minimum amount per weighted pupil need be considered. Referring to Table 1, Chapter III, we find five districts wealthier than New York City receiving state aid at a higher rate than $21 per weighted pupil. Bronxville, the first of these,

receives an excess of $1.47 ($22.47 less $21) for each weighted pupil. This amount received in each of a total of 573 such units gives $842, the amount from the present state fund going to Bronxville that does not contribute toward the support of the minimum program. Together, these five communities receive an excess of $30,618. Albany may be taken to illustrate the manner of computing the excesses for districts less wealthy than the key community. The local contribution of $3.64 per thousand applied to the wealth per weighted pupil in Albany, $13,286, gives $48.36 per weighted pupil. The present state aid per weighted pupil in Albany is $23.43. The sum of these two exceeds $70 by $1.79. This amount figured on 12,784 weighted pupil units gives $22,883, the amount that Albany receives from the present state aid fund that does not apply toward support of the minimum program. Buffalo similarly receives an excess of $169,950 and White Plains $7,655. These are the only districts of the less wealthy group that receive any excess. The sum for all cases, including those districts wealthier than New York City, is $231,109. This, subtracted from $39,000,000—the state aid fund used as a basis for calculation—leaves $38,769,000 as the amount that would apply toward the support of the minimum program under the proposed plan. When the local contribution of $72,257,000 and the contribution from old state funds of $38,769,000 are applied to the total cost of the $70 program, $134,556,000, there is a deficit of $23,530,000 to be provided through further state aid.

A word should be said here concerning a rather common misunderstanding of the effect of the size of the local unit upon the amount of state aid necessary for equalizing a given minimum program. The size of the local unit has been disregarded in the foregoing discussion because it has no effect upon the amount of state aid required. The amount of state aid required is not reduced by the equalization of burden within a large local unit such as the county. It is true that there will not be such extreme inequalities to equalize, but the educational need to be equalized in communities within a county is the same. Less state aid goes to the poor communities in the larger unit, but more goes to the

wealthy. The result for complete equalization is the same. The only place where the size of the unit need enter into consideration in the development of an equalization program is in deciding whether existing units are so organized that it is possible for them to offer the desired minimum. This point is treated in Chapter V.

CHAPTER XII

CORRECTIONS FOR LOCAL RATE OF CONTRIBUTION AND AMOUNT OF STATE SUPPORT FOR CHANGES IN LEVEL OF OFFERING TO BE EQUALIZED

In working on state aid legislation, it is desirable to have the local rate of contribution and the amount of state aid necessary easily available for any minimum program that may come up for discussion. In doing the technical work preceding the development of state aid legislation, this should be provided for. It is not necessary to work out these figures for all levels of minimum offering. Correction figures applicable to any program can be worked out. They are obtained in the same way for the small fund method as for the combination of large and small fund part of the program. For instance, the local rate in New York State for a $70 education, $3.64 per thousand, is based not on the $21 part of the $70 that is cared for on the large fund basis, but solely on the $49 part of the program cared for on the small fund basis. So each of the $49 of the small fund part of the minimum is responsible for one forty-ninth of the $3.64 per thousand or for 7.43 cents per thousand. For any level other than $70, 7.43 cents is added or subtracted from $3.64 for each dollar variation from $70.

A corresponding correction can be obtained for the state aid fund. Since the part that would vary here is not the large fund part of the support that uses old state aid funds but rather the small fund part of the support, in the above illustration the correction for each dollar variation in state aid would be one forty-ninth of the state aid required for the $49 part of the program, or $434,000 [1] plus one forty-ninth of the deficit arising from undertaxing the most able communities. The result is $445,000.

[1] 22.6% of $1.00 for each of the 1,922.232 weighted pupil units in the state.

CHAPTER XIII

PROCEDURE WHEN THE MINIMUM TO BE EQUALIZED IS LESS THAN THE DESIRABLE MINIMUM *

In Chapter III, the conclusion was reached that the first step toward attaining the demands of the principle of equalization should be the equalization of an offering somewhere near the present minimum so as to permit of gradual expansion of the educational offering in the more backward sections of the state. This would call for a gradual increase in the minimum level until the desirable level has been reached, and would require a definite policy with respect to the extent of the local contribution to the equalized minimum. A decision must be reached as to whether the local rate of contribution should be lowered to the point necessary that the burden of the unsatisfactory minimum may be completely equalized, or left at the point that will be required when the proper level has been attained.

The former plan would give complete equalization of the minimum burden, but would require a change in the local contribution every time the minimum level is raised. This is not serious, for this local contribution is not the local tax rate and is not necessarily equivalent to the local required tax rate on assessed valuation.[1] It is only the figure used by the state department in figuring the state aid. Furthermore, it may be desirable to change it from time to time, for it is based upon the relation of wealth and educational need in the key community. Such changes can be readily made if the local rate of contribution is to be adjusted to a new level. The further advantage that accrues from having it low is the large amount of local support

*See page 22.

[1] In the New York State equalization law, for instance, the minimum local tax rate must be equivalent to $5 on each thousand dollars of full value of property. Only $1.50 of this applies to the support of the minimum program.

thereby made available, even in the poorer communities, which can be applied to extension of the program by local initiative, in itself a preparation for raising the equalized minimum. Adjusting the local contribution as the minimum changes takes more state aid initially. This may or may not be advantageous. If the eventual minimum local contribution is set for the inadequate minimum, less state aid is needed to start with, it is true, but every rise in the minimum level will have to be at complete state expense. If the minimum contribution is made to agree with the equalized program, on the other hand, the greater part of the cost of raising the minimum (in New York State 77.4 per cent) is carried by the community.

In setting up the New York State equalization plan, when the minimum was dropped from the $70 level to the $43 level, a corresponding drop was made in the local rate of contribution so that, instead of its being the $3.64 required by the $70 program, it is $1.50, the amount required completely to equalize the $43 education. A higher level of education could have been required with the state aid available by compromising on the equalization of burden rather than on the type of educational opportunity—that is, using the same amount of state aid that was made available; but it was not considered wise to go further than the $43 level as a first step. The result is that New York State is in a very advantageous position for increasing the level because of the comparatively small amount of state aid required. Out of every additional dollar, the state pays but 22.6 cents and the localities 77.4 cents. The increase on the localities will mean no further local burden. They will count toward the support of the equalized minimum program funds which they are already required to raise.

CHAPTER XIV

A PLAN FOR EQUALIZING CAPITAL OUTLAY AND DEBT SERVICE *

ALTHOUGH the measure of educational need obtained in Chapter III presumably applies either to the total cost of the minimum program or to the current cost alone, the illustrations used thus far have been cases where current cost alone is considered. If it is desired to deal with costs other than current costs—that is, capital outlay and debt service—the method of awarding state aid would be different only in that it would involve more bookkeeping. The other phases of the problem would be the same as for current cost. Because of the difference in the manner of awarding the state aid, it should be cared for under separate provisions of the law. Current cost should be dealt with as illustrated in Chapter IV. Capital outlay and debt service should be dealt with as a separate equalization program.

If we may assume that the capital outlay demanded by a minimum program will bear a constant relationship to the current cost of the minimum program, a community may be credited with a given percentage of the current cost of its minimum program each year as the cost of capital outlay and debt service and charged with its proportionate local contribution, as determined by the formula for the minimum local contribution. The difference between these two would be the amount of state aid for capital outlay which the state would make available as conditions in the community demanded. If expenditure toward the minimum provisions defined by law were equal to the minimum capital outlay allowance for a given year, the state aid would be paid according to the formula. If the expenditure were less, the proportionate share of the state aid would be paid and the remainder of the state aid available according to the formula would

* See page 22.

be written on the books to the credit of the given community, to become available whenever the expenditures exceeded the amount determined by the formula.

If this sort of plan were used to supplement the $70 per weighted pupil program for New York State which has been used as an illustration, and the average ratio of capital outlay and debt service to current expenditure were taken as 1 to 10, the annual charge to debt service and capital outlay would be one-tenth of $70, or $7. This would be the minimum program for capital outlay. Assuming that this were all to be equalized on the small fund method, the local rate of contribution would be $\frac{7-0}{13{,}461}$ or 52 cents per thousand dollars valuation.[1] The cost of the minimum program for capital outlay and debt service in a locality would be one-tenth of the cost for other purposes. The state aid to be paid to the community or held to its credit would be one-tenth of the current cost of the minimum program less 52 cents on each thousand dollars of full valuation.

If, over a period of fifty years, the current cost of the minimum program averaged $70, a community would have available over that period of time $350 per weighted pupil for the purpose of buildings toward which it had contributed no more in proportion to its ability to pay than any other community paid toward the similar fund which it had available. A community that started this fifty-year period with excellent buildings all paid for and which spent but little over the period of fifty years would have available for replacing its plant the accumulation of state aid over those fifty years together with the credit accruing each year thereafter. The community that started the fifty years with new buildings unpaid for would have the state aid available toward the retirement of its bonds.

Here, as elsewhere, the community would be allowed state aid only toward a minimum expenditure per weighted pupil. The fact that under the small fund plan of equalization only the poorest communities would receive a large percentage of the total cost from the state, while the wealthiest would receive nothing, would

[1] See formula, page 75.

reduce the state support in the case of New York State, in the long run, to 22.6 per cent of the total cost in the state. Unlike the plan that proposes to pay a certain percentage of capital outlay, the state's contribution could be foretold as accurately as its contribution to current expenditures. It would not fluctuate with building operations, but would increase steadily as school population increased.

CHAPTER XV

LEGAL PROVISIONS FOR DETERMINING THE AMOUNT OF STATE SUPPORT TO WHICH A COMMUNITY IS ENTITLED *

THE simplest method of expressing the total amount of state aid to which a district is entitled under the equalization law is to subtract from the cost of the minimum program the amount which the locality is supposed to contribute. In the case of New York State, the equalization law was written in such a way that only the amount of state aid in addition to other forms of state aid is computed. To make this computation, both the state aid under the other forms of state aid that are made to contribute toward the equalization program and the local contribution are subtracted from the cost of the minimum program. The following quotation from the New York State equalization law defines the procedure:

> The sums to be apportioned to each of such districts shall be determined as follows:
>
> There shall be deducted from the total sum of twelve hundred dollars on account of each elementary school teacher plus the sum of sixteen hundred dollars on account of each high school teacher in the public schools of each such city and district, an amount equal to the total of all sums apportioned and paid out of public school moneys to each such city and school district for the year for which the apportionments authorized by this act are made, plus an amount equivalent to a dollar and fifty cents on each one thousand dollars of actual valuation of taxable property within such city or district. The balance remaining after such deduction, if any, shall be apportioned and paid to each such city or school district in the same manner and at the same time as are other apportionments of public moneys under this chapter.[1]

There are three points of interest in these provisions. All state aid given under other laws is made to contribute toward the

* See page 26.

[1] New York State Education Law, 1925, Sec. 491*b*.

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minimum program. If, under the old payment for effort schemes, a community received a large amount, it would receive correspondingly less from the equalization fund. If it received little from the old plan, it would receive correspondingly more from the equalization fund. Since all but a very few communities are not receiving enough from present state aid plus the local rate of contribution to support the minimum program, nearly all communities receive something from the equalization fund. All that do receive something from the equalization fund would receive exactly the same if all present state aid were written off the statute books and the phrase covering present state aid eliminated from the above provisions. For only a very few communities—those that receive proportionately very large amounts from present state aid, or those that do not need to raise a tax of $1.50 to support the minimum program—do the old payment for effort laws, that control the expenditure of $44,000,000 a year, have any real effect.

If it is desired to exempt any state aid from contributing toward the minimum as defined in the above regulation, it will be necessary to so provide that such state aid will not be subtracted when additional state aid is provided. Two interesting instances where this might arise should be pointed out. Transportation is cared for under a separate provision in the law.[2] Since the cost of transportation is truly a part of the cost of the minimum program, it should not be subtracted in determining additional state aid. Another problem is that of tuition charges for non-resident pupils. A locality that has no high school would receive no high school state aid, but the community offering the educational opportunity would have its educational need increased by one twenty-second of a teacher unit. This would add to the cost of its minimum program one twenty-second of $1,600, or approximately $73.[3] When the receiving of the pupil does not

[2] The state assumes half the cost of transportation in certain types of districts. It would have been slightly better to add this to the cost of the minimum program computed on the teacher-basis but the result would be almost exactly the same.

[3] This would vary with the size of school. In small high schools, it would be as high as $150.

bring any additional wealth to the community to be taxed, this is $73 clear gain. This is no loss to the state because it pays to the community to which the child comes just that amount less. It has the effect then of collecting $73 from the sending community and giving it to the receiving community. This is, of course, fair enough. If the actual per pupil cost is greater than this, the excess is a matter for settlement between the communities for it has to do with a program of education better than the minimum. Now the interesting question that arises here is what to do with a state law that provides for the payment of $75 tuition by the state for the child received. Obviously, this law should be wiped off the statute books. However, so long as it is included in the amount to be subtracted in determining additional state aid, its effect is entirely lost. The community receives exactly what it would receive if the law were repealed.

A third point that should be noted here is the method of expressing the local contribution. It is simply a figure used by the state department in figuring the locality's deficit. As elsewhere provided, the minimum local tax rate to qualify for participation in the equalization fund must be equivalent to $5 on a thousand dollars actual value of property. This extra $3.50 which the locality is required to raise, however, has nothing to do with the minimum program. It belongs to the community for purchasing an education better than the equalized minimum. The local contribution necessary to distribute the burden of the minimum program is so low ($1.50 per thousand) that this other provision was introduced to keep communities gaining from the equalization fund from making less effort toward the support of education than the communities that are really furnishing the equalization funds.

The above method has the advantage of dealing with each community as its wealth and educational need demand. A community that has a dollar more wealth per unit of need than another receives state aid at a lower per unit rate. The Maryland law also uses this method. Counties that levy a $6.70 tax on each $100 of assessable property for current expenditures have the

amount of additional state aid given them that is required to make up the cost of the minimum program.

Another method is sometimes used which lends itself to the small fund plan only. The state aid may be expressed as a contribution by the state at the rate for the amount of wealth the community would have to have in addition to its present wealth to be equivalent in wealth to the key community. The proposal worked out by Updegraff in the Rural School Survey of New York State followed this plan. One of the formulas [4] proposed as a basis for determining state aid was as follows:

$$(240 - V)M \times T \times \$1$$

in which 240 represents the number of thousands equalized valuation of property per teacher in the state, V the similar figure for the community in question, M the local rate of contribution in which Updegraff proposed to permit variation in order to reward effort, and T the number of teachers. This system does not lend itself to an optimum combination of an old method of state aid with a new. The local contribution plus the state aid must always come out the same, providing the local rate of contribution is constant, as it would be for the purpose of equalizing educational opportunity. An examination of either Chart 1 or Chart 2 will indicate that the method used in the New York State equalization law gives varying amounts when the local contribution is added to the state aid for equalization purposes. Where a community receives much from the old state aid, it receives less from the equalization fund, and vice versa, thus making the old state aid funds contribute to the greatest possible degree toward the support of the minimum program. The method used is more than a combination of a large and small fund method of support. It uses the excesses communities are receiving above the $23 cared for on the large fund basis to pay equalization deficits, and it avoids setting up special procedure for increasing large fund state aid up to the $23 level by adding any deficit to the equalization fund due the community.

[4] Updegraff, Harlan. *Financial Support.* p. 141. Rural School Survey of New York State. Ithaca, N. Y., 1922.

In formulating a state aid bill, a decision must be made as to whether the plan is to be set up in principle only, leaving the interpretation of the execution of that principle to the state department, or whether the exact methods to be followed are to be defined. The policy of leaving leeway to the state board is undoubtedly the favored one with respect to such matters as curriculum, and it has been used frequently with respect to the distribution of equalization funds. The early attempts to help out the most needy districts as a general rule left the distribution of funds in some degree to the discretion of the state superintendent or commissioner of education, the state board of education, or some other educational body. New Jersey, New Hampshire, Vermont, and Indiana are examples. Discretionary power has, as a rule, accompanied small appropriations. Although this plan has the disadvantage of being indefinite, it involves little money and has the advantage that a more definite plan might not have—it limits the total amount to be expended. Whatever the cause for the granting of the discretion, it would seem to be a step in the right direction. If the principle is so defined that the legislature can be sure as to the approximate amount of money involved in carrying out the principle, and if at the same time the state board of education is allowed sufficient leeway to institute improvements in carrying out the principle, the situation should be ideal. It ought to encourage enterprising state departments in the development of a high degree of refinement in measures, since the institution of such refinements would not require further legislation. It ought to work toward the development of a system that would do justice to all communities.

The New York equalization law follows this policy to a considerable degree. The principle is defined by setting up a system of standards for measuring educational need to apply without possible change for one year only. Thereafter, the Board of Regents has the power to adjust these standards as it sees fit. The setting up of the system of standards makes the intent of the law clear and makes it possible for the legislature to know the financial implications of its policy.

CHAPTER XVI

EQUALIZING THE BURDEN OF STATE SUPPORT*

If the burden of a minimum program is to be equalized, it must be supported at least to some degree from state funds. Therefore, the question will always arise as to whether the communities in the state contribute to this state support according to their ability. This requires a measure or measures of the ability of localities to pay state taxes. Fortunately, there is no necessity for having a single measure as in the case of ability to pay local taxes. Each tax may be considered separately and any adjustment that may be indicated may be provided.

In the consideration of such a tax as the personal income tax, any inequalities will be inequalities as among individuals or as among classes of individuals rather than as among communities. So far as each community is concerned, it pays its share, and from the viewpoint of this problem, no adjustment is needed. A similar conclusion can be drawn with respect to all taxes which are based upon a definite index that does not demand the interpretation of a local official. This eliminates all state taxes from consideration excepting those taxes levied upon property according to unequalized local assessments.

The obvious cure for such inequalities is the adoption of equalized assessments for all state-wide property taxes. If it is not feasible to take this step and if any considerable inequality would result from neglect of this phase of the problem, it may be found possible to provide for making adjustments for the inequalities in the administration of the equalization law. State aid can be added or withheld to offset the amount by which a community varies from the contribution it should make to the state fund. There is little probability that such a provision could be written into the law because of the complex nature of the explana-

* See page 17.

tion. There is no reason, however, why those state departments that are allowed to use discretion in the division of equalization funds should not make such adjustments where they are of any moment.

The following procedure would be necessary to make these adjustments:

(*a*) Determine the fraction of the total state revenues[1] which comes in the net from property assessed at various rates by the several communities.

(*b*) Multiply the state equalization fund required by this fraction to discover what part of that fund arises from such property taxes.

(*c*) Divide the result by the full valuation of property throughout the state. This gives the rate of contribution to the equalization fund that would be necessary if all property were assessed at full value.

(*d*) Divide the result in (*b*) by the assessed value of property throughout the state. This gaves the rate at which each community actually contributed on the assessed value of its property.

(*e*) The results of (*c*) and (*d*) are those used by the state department in determining the correction to be made to state aid. The full valuation of property in the community is multiplied by (*c*) to determine what the locality's contribution should have been.

(*f*) The assessed value of property in the community is multiplied by (*d*) to determine what the locality actually contributed.

(*g*) The difference between (*e*) and (*f*) should be added to the state aid otherwise determined if (*f*) is the larger. It should be subtracted if (*e*) is the larger.

[1] All state taxes should be included which may be considered as contributing toward general purposes. There are probably ample grounds for excluding such taxes as the motor vehicle and gasoline taxes as special purpose taxes.

CHAPTER XVII

NEEDED RESEARCH IN THE FIELD OF STATE SUPPORT

If, as it now appears, the equalization of educational opportunity proves in the future to be the sole use of state funds for support of public schools, we are well on the way toward an adequate interpretation of the problem of state financing of public schools. There is need, however, for further research into the implications of the findings of the Educational Finance Inquiry which have been mentioned, as well as for certain refinements in the technique of equalizing educational opportunity.

The equalization of burden is given first place only because it cannot be exercised without state aid; whereas, presumably, encouraging progress is not solely dependent upon the use of state aid. If it were demonstrated that the equalization of the burden of the state's program would result in wasting time educationally, or if it were demonstrated that the use of payment for effort promised better educational results in the long run, many people would hold that payment for effort would be justified regardless of the inequality in burden it might introduce. There would be very few people who would not take this position providing the inequality of burden introduced were reasonably small—let us say comparable to the inequality of burden inherent in the taxing system.

Can it be granted that progress can be properly encouraged without rewarding effort? Are the other agencies for encouraging progress adequate? Does use of state funds for bringing about complete equalization of the burden of a minimum program involved in equalizing educational opportunity with no reward for effort, promise as great educational progress as a use of part of the funds for rewarding effort with the resulting incomplete equalization of burden? The answers to these questions have a direct bearing upon the policies to be adopted for controlling pay-

ment for effort. Should payment for effort be continued as equalization is improved? Should it be discontinued to make possible complete equalization of burden? These questions can be partly answered through a comparison of the relative efficacy of means that have been used to bring about progress and experimentation with methods tried in other activities or entirely new. Among other things this will require that the various methods of rewarding effort be evaluated with respect to their influence upon educational progress. It will require the evaluation of plans not requiring state aid which have brought about similar results in different states. It will require the evaluation of the equalization of burden as a factor in educational progress.

There are enough materials in the forty-eight states to make possible significant studies along these lines. States that have made the rewarding of effort a primary use of state aid should provide ample material for determining the conditions under which the various plans of rewarding effort are the most effective and their effectiveness in encouraging educational progress. For the question as to whether as good or better results might have been obtained without the use of state aid, the investigator will likewise find a rich field in the variety of ways that various educational steps have been taken in different states. There is a less rich field for the effects toward encouraging progress of different degrees of equalizing burden, but it is by no means a barren one. There are states that are doing practically nothing with respect to equalization of burden. There are half a dozen states that have been doing considerable for a quarter of a century or more. There are such examples as Delaware and Maryland, that have been operating for a time well up on the scale. There are county units with local school boards within the county with the right to go beyond the county's program, which reproduce for a small unit the ideal conditions for a state as a whole with respect to equalization of burden. Some conclusions may well be drawn from the experience of these units.

Failure to have immediate answers to these questions should not affect the progress toward more adequate equalization of edu-

cational opportunity for a few years at least. There is no state that does not have a considerable distance to go along this line, and probably even the most ardent exponents of payment for effort would not object to the further expansion of equalization in any state. But the present indications from the expansion of equalization funds in many states and the attempts of such states as Maryland and New York to carry out, in so far as possible, the implications of equalization, are that it will not be long until some state, in its actual practice, will have reached the stage of conflict.

Within the field of equalization there are certain problems in which clarification is needed. Although, in the writer's opinion at least, none of these will make any marked difference in procedure as it can now be defined, at least two of them now constitute points of attack for those opposed to the complete application of the principles of equalization of educational opportunity. The solutions of all three of them promise to be comparatively simple.

There is need for the development of an adequate index for measuring the cost of transportation of pupils. In some communities transportation of pupils is necessary in order that the state's minimum program may be offered. The costs of such transportation are legitimate responsibilities of the state as a whole. They should be considered as a part of the cost of the minimum program. Up to this time, however, no adequate index of transportation cost has been developed. States that are seriously attempting to assume the responsibility for a satisfactory minimum program are handicapped for the lack of such an index.

The development of an index for the necessary cost of transportation appears to be the type of problem that lends itself to direct solution. A great many of the factors, such as length of haul and number of pupils, will be common to all situations. An index developed upon such factors may be corrected for disturbing local factors which are beyond the control of the locality.

A second problem in this field is the working out of any correction to the measure of educational need that may be demanded by differences among communities in cost of living. This is a problem that has been clouded by the fact that communities with

a high cost of living also employ better trained teachers than other communities so that a comparison of salaries paid—though strangely enough allowed to affect state minimum salary legislation out of all proportion to the differences in training of teachers—does not yield a fair measure of the relative cost that would have to be met in the actual employment of teachers of the minimum program type. Yet it is this minimum teacher whose cost is to be considered in the equalization of educational opportunity. As indicated in Chapter II, Prussia with a problem somewhat similar, has disregarded this 'open market' argument in figuring the salaries of supposedly equally competent teachers for posts in large and small communities. An actual standard of living and an equal saving beyond this are the criteria used for determining salary. Prussia has the problem of measuring the cost of equivalent teaching ability and in that respect her problem has been the same as the one we are facing in an attempt to measure the cost for salaries of teachers with the minimum preparation and ability permitted by the minimum program. This may give us a lead for the solution to this vexing question.

Early solution of this problem is desirable because it appears to be of greater importance than it really is. City authorities, thinking in terms of the total salaries paid teachers with qualifications in many cases much in excess of the minimum, think of the correction as being much greater than it would amount to on the total of the salaries that would be paid minimum teachers—which is the real base to be corrected. Of course, if, as it has been contended, the cost of teachers with minimum qualifications on the open market proves to be the tenable criterion, the correction might work to lower the allotments to cities that are particularly attractive to teachers for one reason or another.

The final question to which attention is called is the mooted question of equalizing the burden for capital outlay. There are those that advance convincing arguments for leaving capital outlay to the localities. Yet it is a fact that to some few communities in many states, at least, the provision of adequate housing by local support alone would not be a mere 10 per cent in addition to the burden carried to support its current expenditure but as much

as 50 per cent or 75 per cent. There are instances in states in which even comparatively large local units exist, where this figure goes as high as 100 per cent. In the face of this condition, states are providing state aid for buildings. It would seem obvious, then, that a study is needed that will care for the various viewpoints on this subject and reconcile them with the above conditions.

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